

NAEP 2007 Mathematics Report for Arizona



This report provides selected results from the National Assessment of Educational Progress (NAEP) for Arizona's public school students at grades 4 and 8. Beginning in 1990, mathematics has been assessed in seven different years at the state level (at grade 8 in 1990, and at both grades 4 and 8 in 1992, 1996, 2000, 2003, 2005, and 2007).

In the 2007 assessment, 52 jurisdictions participated: the 50 states, the District of Columbia, and the Department of Defense Schools (domestic and overseas). Arizona participated and met the criteria for reporting public school results. Mathematics results are reported by average scale scores (on a 0–500 point scale) and by achievement levels (*Basic*, *Proficient*, and *Advanced*).

NAEP is a project of the National Center for Education Statistics (NCES). For more information about the assessment, see *The Nation's Report Card, Mathematics 2007*, which is available on the NAEP website along with the full set of national and state results in an interactive database (<http://nces.ed.gov/nationsreportcard/>). Released test questions, scoring guides, and question-level performance data are also available on the website.

K E Y F I N D I N G S F O R 2 0 0 7

Grade 4:

- The average mathematics score for students in Arizona was 232. This was higher than that in 1992 (215) and was not significantly different from that in 2005 (230).
- Arizona's average score (232) was lower than that of the nation's public schools (239).
- The percentage of students in Arizona who performed at or above *Proficient* was 31 percent. This was greater than that in 1992 (13 percent) and was not significantly different from that in 2005 (28 percent).
- In Arizona, the percentage of students who performed at or above *Proficient* was smaller than that for the nation's public schools (39 percent).
- The percentage of students in Arizona who performed at or above *Basic* was 74 percent. This was greater than that in 1992 (53 percent) and was not significantly different from that in 2005 (70 percent).
- In Arizona, the percentage of students who performed at or above *Basic* was smaller than that for the nation's public schools (81 percent).

Grade 8:

- The average mathematics score for students in Arizona was 276. This was higher than that in 1990 (260) and was not significantly different from that in 2005 (274).
- Arizona's average score (276) was lower than that of the nation's public schools (280).
- The percentage of students in Arizona who performed at or above *Proficient* was 26 percent. This was greater than that in 1990 (13 percent) and was not significantly different from that in 2005 (26 percent).
- In Arizona, the percentage of students who performed at or above *Proficient* was smaller than that for the nation's public schools (31 percent).
- The percentage of students in Arizona who performed at or above *Basic* was 66 percent. This was greater than that in 1990 (48 percent) and was not significantly different from that in 2005 (64 percent).
- In Arizona, the percentage of students who performed at or above *Basic* was smaller than that for the nation's public schools (70 percent).

The U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) has provided software that generated user-selectable data, statistical significance test result statements, and technical descriptions of the NAEP assessments for this report. Content may be added or edited by states or other jurisdictions. This document, therefore, is not an official publication of the National Center for Education Statistics.

Introduction

What Was Assessed?

The content for each NAEP assessment is determined by the National Assessment Governing Board. The objectives for each NAEP assessment are described in a "framework," a document that delineates the important content and process areas to be measured, as well as the types of questions to be included on the assessment.

The mathematics framework for the 2007 National Assessment of Educational Progress is based on the frameworks that guided the 1990, 1992, 1996, 2000, 2003, and 2005 mathematics assessments. Those frameworks were developed with the guidance of the College Board and directed by the Governing Board. The 2007 NAEP mathematics framework calls for questions based on five mathematics content areas: number properties and operations; measurement; geometry; data analysis and probability; and algebra. The mathematics framework is available on the Governing Board's website (http://www.nagb.org/pubs/m_framework_05/761607-Math%20Framework.pdf).

The 2007 mathematics framework classifies test items in two dimensions—content area and mathematical complexity. Although the names of the content areas, as well as some of the topics in those areas, have changed from one framework to the next, a consistent focus has remained across frameworks on collecting information on student performance in the five content areas mentioned above. The two dimensions of mathematical ability and power in the 1996–2003 frameworks have been replaced in the 2005 and 2007 frameworks by the dimension of mathematical complexity. Mathematical complexity of an item answers the question, "What does the item ask of the students?" Each level of complexity includes aspects of knowing and doing mathematics, such as reasoning, performing procedures, understanding concepts, or solving problems. The levels are ordered, so that items at a low level would demand that students perform simple procedures, understand elementary concepts, or solve simple problems. Items at the high end would ask students to reason or communicate about sophisticated concepts, perform complex procedures, or solve nonroutine problems. Ordering of the levels is not intended to imply a developmental sequence or the sequencing in which teaching or learning occur. Rather, it is a description of the different demands made on students by particular test items.

While the titles of these dimensions have been modified, the nature of the test questions has not changed, and the capacity to report trends in NAEP scale scores has been maintained.

A combination of multiple-choice and constructed-response questions was used to assess students' mathematics performance. Short constructed-response questions ask students to provide the answer for a numerical problem or to briefly describe the solution to a problem. Longer constructed-response questions require students to produce both a solution and a justification, explanation, or interpretation for the solution. Released test questions, along with student performance data by state, are available on the NAEP website (<http://nces.ed.gov/nationsreportcard/itmrls/>).

The framework incorporates the use of calculators (four-function at grade 4 and scientific at grade 8), rulers, protractors (grade 8), and manipulatives such as spinners and geometric shapes. The use of these ancillary materials and the use of calculators were incorporated into some parts of the assessment, but not all. Calculator use was permitted on approximately one-third of the test questions.

Who Was Assessed?

Fifty-two jurisdictions participated in NAEP in 2007: the 50 states, the District of Columbia, and the Department of Defense Education Activity Schools (domestic and overseas). The target sample for each state or other jurisdiction was approximately 100 schools at each grade tested and approximately 3,000 students for each subject at each grade. States containing trial urban districts had larger samples.

The sample of schools and students was chosen in a two-stage sampling process. First, the sample of schools was selected by probability sampling methods. Then, within the participating schools, random samples of students were

chosen.

Beginning in 2002, the national sample was obtained by aggregating the samples from each state. The national results include the results from the states and from a sample of private schools, weighted appropriately to represent the U.S. student population. Only public schools, however, are included in the state reports.

The overall participation rates for schools and students must meet guidelines established by the National Center for Education Statistics (NCES) and the National Assessment Governing Board for assessment results to be reported publicly. A participation rate of at least 85 percent for schools in each subject and grade was required.

Participation rates for the 2007 mathematics assessment are available at the NAEP website (<http://nces.ed.gov/nationsreportcard/mathematics/sampledesign.asp>).

How Is Student Mathematics Performance Reported?

The results of student performance on the NAEP assessments in 2007 are reported for various groups of students (e.g., fourth-grade female students or students who took the assessment in a particular year). NAEP does not produce scores for individual students, nor does it report scores for schools or for school districts. Some large urban districts, however, have voluntarily participated in the assessment on a trial basis and were sampled as states were sampled. Mathematics performance for groups of students is reported in two ways: as average scale scores and as percentages of students performing at various achievement levels.

Scale Scores: Student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500 and is linked to the corresponding scales in 1990, 1992, 1996, 2000, 2003, and 2005. Subscales were created to reflect performance on each of the five content areas defined in the NAEP mathematics framework.

An overall composite scale was developed by weighting each of the mathematics subscales for the grade based on its relative importance in the framework. This composite scale is used to present the average scale scores and selected percentiles used in NAEP reports.

Achievement Levels: Student performance is also reported in terms of three achievement levels—*Basic*, *Proficient*, and *Advanced*. Results based on achievement levels are expressed in terms of the percentage of students who attained each level. The three achievement levels are defined as follows:

- *Basic:* This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- *Proficient:* This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- *Advanced:* This level signifies superior performance.

The achievement levels are cumulative. Therefore, students performing at the *Proficient* level also display the competencies associated with the *Basic* level, and students at the *Advanced* level demonstrate the competencies associated with both the *Basic* and the *Proficient* levels.

The achievement levels are performance standards adopted by the National Assessment Governing Board as part of its statutory responsibilities mandated by Congress. The levels represent collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations made by broadly representative panels of classroom teachers, education specialists, and members of the general public from throughout the United States. As provided by law, the NCES, upon review of congressionally mandated evaluations of NAEP, has determined that the achievement levels are to be used on a trial basis until it is determined that they are "reasonable, valid, and informative to the public" (No Child Left Behind Act of 2001, P.L., 107-110, 115 Stat.1425 [2002]). NAEP achievement levels have been widely used by national and state officials. The mathematics achievement-level descriptions are summarized in figure 1.

Figure 1-A	The Nation's Report Card 2007 State Assessment
	Descriptions of fourth-grade achievement levels for 2007 NAEP mathematics assessment

Basic Level (214)	Fourth-grade students performing at the <i>Basic</i> level should show some evidence of understanding the mathematical concepts and procedures in the five NAEP content areas.
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Fourth-graders performing at the *Basic* level should be able to estimate and use basic facts to perform simple computations with whole numbers, show some understanding of fractions and decimals, and solve some simple real-world problems in all NAEP content areas. Students at this level should be able to use—though not always accurately—four-function calculators, rulers, and geometric shapes. Their written responses are often minimal and presented without supporting information.

Proficient Level (249)	Fourth-grade students performing at the <i>Proficient</i> level should consistently apply integrated procedural knowledge and conceptual understanding to problem solving in the five NAEP content areas.
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Fourth-graders performing at the *Proficient* level should be able to use whole numbers to estimate, compute, and determine whether results are reasonable. They should have a conceptual understanding of fractions and decimals; be able to solve real-world problems in all NAEP content areas; and use four-function calculators, rulers, and geometric shapes appropriately. Students performing at the *Proficient* level should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved.

Advanced Level (282)	Fourth-grade students performing at the <i>Advanced</i> level should apply integrated procedural knowledge and conceptual understanding to complex and nonroutine real-world problem solving in the five NAEP content areas.
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Fourth-graders performing at the *Advanced* level should be able to solve complex and nonroutine real-world problems in all NAEP content areas. They should display mastery in the use of four-function calculators, rulers, and geometric shapes. The students are expected to draw logical conclusions and justify answers and solution processes by explaining why, as well as how, they were achieved. They should go beyond the obvious in their interpretations and be able to communicate their thoughts clearly and concisely.

NOTE: The scores in parentheses indicate the cut point on the scale at which the achievement-level range begins.
 SOURCE: National Assessment Governing Board. (2006). *Mathematics Framework for the 2007 National Assessment of Educational Progress*. Washington, DC: Author.

Figure 1-B	The Nation's Report Card 2007 State Assessment
	Descriptions of eighth-grade achievement levels for 2007 NAEP mathematics assessment

Basic Level (262)	Eighth-grade students performing at the <i>Basic</i> level should exhibit evidence of conceptual and procedural understanding in the five NAEP content areas. This level of performance signifies an understanding of arithmetic operations—including estimation—on whole numbers, decimals, fractions, and percents.
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Eighth-graders performing at the *Basic* level should complete problems correctly with the help of structural prompts such

as diagrams, charts, and graphs. They should be able to solve problems in all NAEP content areas through the appropriate selection and use of strategies and technological tools—including calculators, computers, and geometric shapes. Students at this level also should be able to use fundamental algebraic and informal geometric concepts in problem solving. As they approach the *Proficient* level, students at the *Basic* level should be able to determine which of the available data are necessary and sufficient for correct solutions and use them in problem solving. However, these eighth-graders show limited skill in communicating mathematically.

Proficient Level (299)	Eighth-grade students performing at the <i>Proficient</i> level should apply mathematical concepts and procedures consistently to complex problems in the five NAEP content areas.
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Eighth-graders performing at the *Proficient* level should be able to conjecture, defend their ideas, and give supporting examples. They should understand the connections among fractions, percents, decimals, and other mathematical topics such as algebra and functions. Students at this level are expected to have a thorough understanding of *Basic*-level arithmetic operations—an understanding sufficient for problem solving in practical situations. Quantity and spatial relationships in problem solving and reasoning should be familiar to them, and they should be able to convey underlying reasoning skills beyond the level of arithmetic. They should be able to compare and contrast mathematical ideas and generate their own examples. These students should make inferences from data and graphs, apply properties of informal geometry, and accurately use the tools of technology. Students at this level should understand the process of gathering and organizing data and be able to calculate, evaluate, and communicate results within the domain of statistics and probability.

Advanced Level (333)	Eighth-grade students performing at the <i>Advanced</i> level should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles in the five NAEP content areas.
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Eighth-graders performing at the *Advanced* level should be able to probe examples and counterexamples in order to shape generalizations from which they can develop models. Eighth-graders performing at the *Advanced* level should use number sense and geometric awareness to consider the reasonableness of an answer. They are expected to use abstract thinking to create unique problem-solving techniques and explain the reasoning processes underlying their conclusions.

NOTE: The scores in parentheses indicate the cut point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2006). *Mathematics Framework for the 2007 National Assessment of Educational Progress*. Washington, DC: Author.

Assessing Students With Disabilities (SD) and/or English Language Learners (ELL)

The results displayed in this report and official publications of NAEP 2007 results are based on representative samples that include students with disabilities (SD) and students who are English language learners (ELL). Some of these students were assessed using accommodations (such as extra time and testing in small groups). In state NAEP mathematics assessments prior to 2000, no testing accommodations or adaptations were permitted for SD or ELL students. However, research carried out by NAEP showed that the results for students who were accommodated could be combined with the results for unaccommodated students without compromising the validity of the NAEP scales in trend comparisons. Therefore, the identified SD and ELL students who typically received accommodations in their classroom testing and required these accommodations to participate, also received them in the NAEP assessment, provided the accommodations did not change the nature of what was tested.

School staff make the decisions about whether to include an SD or ELL student in a NAEP assessment, and which testing accommodations, if any, they should receive. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure is used to select students at each grade being tested. Students are selected on a random basis, without regard to SD or ELL status. Once the students are selected, the schools identify which have SD or ELL status. School staff who are familiar with these students are asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Inclusion in NAEP of an SD or ELL student is encouraged if that student (a) participated in the regular state

academic assessment in the subject being tested, and (b) if that student can participate in NAEP with the accommodations NAEP allows. Even if the student did not participate in the regular state assessment, or if he/she needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. (Examples of testing accommodations not allowed in NAEP are giving the reading assessment in a language other than English, or reading the reading passages aloud to the student. Also, extending testing over several days is not allowed for NAEP because NAEP administrators are in each school only one day.)

All ELL students who received academic instruction in English for one year or more were to be included in the assessment. Those ELL students who received instruction in English for less than one year were to be included unless school staff judged them to be incapable of participating in the assessment in English. An English-Spanish bilingual test booklet was available as an accommodation for Spanish-speaking students.

In 2000, NAEP was administered using a split sample of schools—one sample in which accommodations were permitted for special-needs students who normally received them and another sample in which accommodations were not permitted. Therefore, there were two different sets of results available for 2000 and both are shown in the tables in this report. Results for the assessment years where accommodations were not permitted in state NAEP assessments (1990, 1992, 1996) are reported in the same tables as the results where accommodations were permitted (2000, 2003, 2005, and 2007).

Cautions in Interpreting Results

The averages and percentages in this report are estimates based on samples of students rather than on entire populations. Moreover, the collection of questions used at each grade level is only a sample of the many questions that could have been asked to assess the skills and abilities described in the NAEP framework. Therefore, the results are subject to a measure of uncertainty, reflected in the standard error of the estimates—a range of up to a few points above or below the score or percentage—which takes into account potential score fluctuation due to sampling error and measurement error. Statistical tests that factor in these standard errors are used to determine whether the differences between average scores or percentages are significant. All differences were tested for statistical significance at the .05 level.

NAEP sample sizes have increased since 2002 compared to previous years, resulting in smaller standard errors. As a consequence, smaller differences are detected as statistically significant than detected in previous assessments. In addition, estimates based on smaller groups are likely to have relatively large standard errors. Thus, some seemingly large differences may not be statistically significant. That is, it cannot be determined whether these differences are due to sampling error, or to true differences in the population of interest.

Differences between scores or between percentages are discussed in this report only when they are significant from a statistical perspective. Statistically significant differences are referred to as "significant differences" or "significantly different." Significant differences between 2007 and prior assessments are marked with a notation (*) in the tables. Any differences in scores within a year or across years that are mentioned in the text as "higher," "lower," "greater," or "smaller" are statistically significant.

It is important to note that simple cross-tabulations of a variable with measures of educational achievement, like the ones presented in this report, cannot constitute proof that a difference in the variable causes differences in educational achievement. There might be several reasons why the performance of one group of students might differ from another. Only through controlled experiments with random assignment of students to groups can hypotheses about the causes of performance differences be tested.

NAEP 2007 Mathematics Overall Scale Score and Achievement-Level Results for Public School Students

Overall Scale Score Results

In this section, student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500. Scores on this scale are comparable from 1990 through 2007.

Prior to 2000, testing accommodations were not provided for students with special needs in NAEP state mathematics assessments. For 2000, results are displayed for both the sample in which accommodations were permitted and the sample in which they were not permitted. Subsequent assessment results were based on the more inclusive samples. In the text of this report, comparisons to 2000 results refer only to the sample in which accommodations were permitted.

Tables 1-A and 1-B show the overall performance results of grades 4 and 8 public school students in Arizona, the nation (public), and the region. The list of states making up a given region for NAEP prior to 2003 differed from the list used by the U.S. Census Bureau, which has been used in NAEP from 2003 onward. Therefore, the data for the state's region are given only for 2003, 2005, and 2007. The first column of results presents the average score on the NAEP mathematics scale. The remaining columns show the scores at selected percentiles. A percentile indicates the percentage of students whose scores fell at or below a particular score. For example, the 25th percentile demarks the cut point for the lowest 25 percent of students within the distribution of scale scores.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 4 Scale Score Results

- In 2007, the average scale score for students in Arizona was 232. This was lower than that for students across the nation (239).
- In Arizona, the average scale score for students in 2007 was not significantly different from that in 2005 (230). However, the average scale score for students in public schools across the nation in 2007 was higher than that in 2005 (237).
- In Arizona, the average scale score for students in 2007 was higher than the scores in 1992, 1996, 2000, and 2003.

**Table
1-A**

The Nation's Report Card 2007 State Assessment

Average scale scores and selected percentile scores in NAEP mathematics for fourth-grade public school students, by assessment year and jurisdiction: Various years, 1992–2007

Year and jurisdiction	Average scale score	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
1992 ¹ Nation (public)	219*	176*	197*	220*	241*	259*
Arizona	215*	174*	195*	217*	236*	253*
1996 ¹ Nation (public)	222*	180*	201*	224*	244*	261*
Arizona	218*	177*	198*	219*	239*	256*
2000 ¹ Nation (public)	226*	185*	206*	228*	249*	265*
Arizona	219*	176*	198*	221*	241*	258*
2000 Nation (public)	224*	183*	203*	225*	247*	264*
Arizona	219*	180*	198*	220*	240*	256*
2003 Nation (public)	234*	196*	215*	235*	254*	270*
West ²	230*	191	210*	231*	251*	267*
Arizona	229*	190	209	230*	249	265*
2005 Nation (public)	237*	199*	219*	239*	257*	272*
West ²	233	193	213	235	254*	270*
Arizona	230	190	209	232	251	268
2007 Nation (public)	239	201	221	241	259	274
West ²	233	191	213	236	256	272
Arizona	232	191	213	234	254	269

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. All differences were tested for statistical significance at the .05 level using unrounded numbers. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Scale Score Results

- In 2007, the average scale score for students in Arizona was 276. This was lower than that for students across the nation (280).
- In Arizona, the average scale score for students in 2007 was not significantly different from that in 2005 (274). However, the average scale score for students in public schools across the nation in 2007 was higher than that in 2005 (278).
- In Arizona, the average scale score for students in 2007 was higher than the scores in 1990, 1992, 1996, 2000, and 2003.

**Table
1-B**

The Nation's Report Card 2007 State Assessment

Average scale scores and selected percentile scores in NAEP mathematics for eighth-grade public school students, by assessment year and jurisdiction: Various years, 1990–2007

Year and jurisdiction	Average scale score	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
1990 ¹ Nation (public)	262*	214*	237*	263*	288*	307*
Arizona	260*	215*	236*	260*	283*	304*
1992 ¹ Nation (public)	267*	219*	242*	268*	293*	314*
Arizona	265*	223	244*	266*	288*	307*
1996 ¹ Nation (public)	271*	222*	247*	272*	296*	316*
Arizona	268*	225	246*	268*	290*	310*
2000 ¹ Nation (public)	274*	225*	250*	276*	300*	321*
Arizona	271*	225	248	273	295*	315
2000 Nation (public)	272*	221*	247*	274*	299*	320*
Arizona	269*	219*	245*	270*	294*	315
2003 Nation (public)	276*	228*	253*	278*	301*	321*
West ²	272*	222*	247*	273*	299*	320*
Arizona	271*	227	248*	272	294*	315*
2005 Nation (public)	278*	230*	254*	279*	303*	323*
West ²	273*	224	248	274*	299*	321*
Arizona	274	227	250	276	300	320
2007 Nation (public)	280	234	257	281	305	325
West ²	275	226	250	276	302	323
Arizona	276	229	253	277	300	321

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. All differences were tested for statistical significance at the .05 level using unrounded numbers. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Overall Achievement-Level Results

In this section student performance is reported as the percentage of students performing relative to performance standards set by the National Assessment Governing Board. These performance standards for what students should know and be able to do were based on the recommendations of broadly representative panels of educators and members of the public.

In 2000 only, results were obtained for two student samples: one for which accommodations were permitted and one for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample in which accommodations were permitted.

Tables 2-A and 2-B show the percentage of students at grades 4 and 8 who performed below *Basic*, at or above *Basic*, at or above *Proficient*, and at the *Advanced* level. Because the percentages are cumulative from *Basic* to *Proficient* to *Advanced*, they sum to more than 100 percent. Only the percentage of students performing at or above *Basic* (which includes the students at *Proficient* and *Advanced*) plus the students below *Basic* will sum to 100 percent (except for rounding).

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 4 Achievement-Level Results

- In 2007, the percentage of Arizona's students who performed at or above *Proficient* was 31 percent. This was smaller than the percentage of the nation's public school students who performed at or above *Proficient* (39 percent).
- In Arizona, the percentage of students who performed at or above *Proficient* in 2007 was greater than the percentages in 1992, 1996, 2000, and 2003, but was not significantly different from the percentage in 2005.
- In Arizona, the percentage of students who performed at or above *Basic* in 2007 was greater than the percentages in 1992, 1996, and 2000, but was not significantly different from the percentages in 2003 and 2005.

**Table
2-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students at or above NAEP mathematics achievement levels, by assessment year and jurisdiction: Various years, 1992–2007

Year and jurisdiction	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
1992 ¹ Nation (public)	43*	57*	17*	2*
Arizona	47*	53*	13*	1*
1996 ¹ Nation (public)	38*	62*	20*	2*
Arizona	43*	57*	15*	1*
2000 ¹ Nation (public)	33*	67*	25*	2*
Arizona	42*	58*	17*	2*
2000 Nation (public)	36*	64*	22*	2*
Arizona	43*	57*	16*	1*
2003 Nation (public)	24*	76*	31*	4*
West ²	29*	71*	27*	3*
Arizona	30	70	25*	2*
2005 Nation (public)	21*	79*	35*	5*
West ²	26	74	31*	4
Arizona	30	70	28	3
2007 Nation (public)	19	81	39	5
West ²	26	74	33	5
Arizona	26	74	31	4

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Achievement-Level Results

- In 2007, the percentage of Arizona's students who performed at or above *Proficient* was 26 percent. This was smaller than the percentage of the nation's public school students who performed at or above *Proficient* (31 percent).
- In Arizona, the percentage of students who performed at or above *Proficient* in 2007 was greater than the percentages in 1990, 1992, 1996, 2000, and 2003, but was not significantly different from the percentage in 2005.
- In Arizona, the percentage of students who performed at or above *Basic* in 2007 was greater than the percentages in 1990, 1992, 1996, 2000, and 2003, but was not significantly different from the percentage in 2005.

**Table
2-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students at or above NAEP mathematics achievement levels, by assessment year and jurisdiction: Various years, 1990–2007

Year and jurisdiction	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
1990 ¹ Nation (public)	49*	51*	15*	2*
Arizona	52*	48*	13*	1*
1992 ¹ Nation (public)	44*	56*	20*	3*
Arizona	45*	55*	15*	1*
1996 ¹ Nation (public)	39*	61*	23*	4*
Arizona	43*	57*	18*	2*
2000 ¹ Nation (public)	35*	65*	26*	5*
Arizona	38	62	21*	3
2000 Nation (public)	38*	62*	25*	5*
Arizona	40*	60*	20*	3
2003 Nation (public)	33*	67*	27*	5*
West ²	39*	61*	25*	5*
Arizona	39*	61*	21*	3*
2005 Nation (public)	32*	68*	28*	6*
West ²	38*	62*	25*	5*
Arizona	36	64	26	5
2007 Nation (public)	30	70	31	7
West ²	36	64	27	6
Arizona	34	66	26	5

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Mathematics Performance of Selected Student Groups

This section of the report presents trend results for students in Arizona and the nation by demographic characteristics. Student performance data are reported for

- gender
- race/ethnicity
- student eligibility for the National School Lunch program
- type of location (for 2007 only)
- parents' highest level of education (for grade 8 only).

Definitions of NAEP reporting groups are available on the NAEP website (<http://nces.ed.gov/nationsreportcard/mathematics/results2007/interpret-results.asp#RepGroups>).

Each of the variables is reported in tables that present the percentage of students belonging to each group in the first column and the average scale score in the second column. The columns to the right show the percentage of students below *Basic* and at or above each achievement level.

Differences between scores or percentages mentioned in the text are calculated using unrounded values. The result of subtracting the rounded values displayed in the tables may differ (usually by one point) from the results that would be obtained by subtracting the unrounded values.

The reader is cautioned against making causal inferences about the performance of groups of students relative to demographic variables. Many factors other than those discussed here, including home and school factors, may affect student performance.

NAEP collects information on many additional variables, including school and home factors related to achievement. All of this information is in an interactive database available on the NAEP website (<http://nces.ed.gov/nationsreportcard/naepdata/>).

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Gender

Information on student gender is reported by the student's school when rosters of the students eligible to be assessed are submitted to NAEP.

Tables 3-A and 3-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in Arizona and the nation by gender. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Score "gaps". In the bulleted text that follows, statements that compare the score gap between male and female students first make the comparison for the current year, and then for the initial year of the assessment. Intervening years are not compared. If the size of the score gap has changed significantly from the initial assessment year to the current year, the bullet will indicate a narrowing or widening of the score gap.

Grade 4 Scale Score Results by Gender

- In 2007, male students in Arizona had an average score that was not found to be significantly different from that of female students. In 1992, there was no significant difference between the average score of male and female students.
- In 2007, male students in Arizona had an average scale score in mathematics (233) that was lower than that of male students in public schools across the nation (240). Similarly, female students in Arizona had an average scale score (230) that was lower than that of female students across the nation (238).
- In Arizona, the average scale score of male students in 2007 was higher than the scores of students in 1992, 1996, and 2000, but not found to be significantly different from the scores of students in 2003 and 2005.
- In Arizona, the average scale score of female students in 2007 was higher than the scores of students in 1992, 1996, and 2000, but not found to be significantly different from the scores of students in 2003 and 2005.

Grade 4 Achievement-Level Results by Gender

- In the 2007 assessment, 34 percent of male students and 27 percent of female students performed at or above *Proficient* in Arizona. The difference between these percentages was statistically significant.
- The percentage of male students in Arizona's public schools who were at or above *Proficient* in 2007 (34 percent) was smaller than that of males in the nation (41 percent).
- The percentage of female students in Arizona's public schools who were at or above *Proficient* in 2007 (27 percent) was smaller than that of females in the nation (36 percent).
- In Arizona, the percentage of male students performing at or above *Proficient* in 2007 was greater than the corresponding percentages of students in 1992, 1996, 2000, and 2003, but not significantly different from the percentage of students in 2005.
- In Arizona, the percentage of female students performing at or above *Proficient* in 2007 was greater than the corresponding percentages of students in 1992, 1996, 2000, and 2003, but not significantly different from the percentage of students in 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
3-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by gender, assessment year, and jurisdiction: Various years, 1992–2007

Gender, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Male						
1992 ¹ Nation (public)	50	220*	41*	59*	19*	2*
Arizona	51	215*	47*	53*	13*	1*
1996 ¹ Nation (public)	51	224*	37*	63*	22*	3*
Arizona	51	218*	43*	57*	17*	2*
2000 ¹ Nation (public)	51	227*	32*	68*	27*	3*
Arizona	52	220*	41*	59*	18*	2*
2000 Nation (public)	51	225*	35*	65*	25*	3*
Arizona	53	219*	43*	57*	16*	2*
2003 Nation (public)	51	235*	23*	77*	34*	5*
Arizona	50	231	28	72	28*	2*
2005 Nation (public)	51	238*	20*	80*	37*	6*
Arizona	52	233	26	74	32	4
2007 Nation (public)	51	240	18	82	41	7
Arizona	51	233	26	74	34	5
Female						
1992 ¹ Nation (public)	50	218*	44*	56*	16*	1*
Arizona	49	216*	46*	54*	13*	1*
1996 ¹ Nation (public)	49	221*	39*	61*	17*	1*
Arizona	49	217*	44*	56*	13*	1*
2000 ¹ Nation (public)	49	225*	34*	66*	22*	2*
Arizona	48	218*	42*	58*	16*	1*
2000 Nation (public)	49	223*	38*	62*	20*	1*
Arizona	47	219*	43*	57*	15*	1*
2003 Nation (public)	49	233*	25*	75*	29*	3*
Arizona	50	227	32	68	23*	2
2005 Nation (public)	49	236*	21*	79*	33*	4*
Arizona	48	227	33*	67*	24	2
2007 Nation (public)	49	238	19	81	36	4
Arizona	49	230	27	73	27	3

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Scale Score Results by Gender

- In 2007, male students in Arizona had an average score that was not found to be significantly different from that of female students. In 1990, the average score for male students was higher than that of female students by 6 points.
- In 2007, male students in Arizona had an average scale score in mathematics (277) that was lower than that of male students in public schools across the nation (281). Similarly, female students in Arizona had an average scale score (274) that was lower than that of female students across the nation (279).
- In Arizona, the average scale score of male students in 2007 was higher than the scores of students in 1990, 1992, 1996, 2000, and 2003, but not found to be significantly different from the score of students in 2005.
- In Arizona, the average scale score of female students in 2007 was higher than the scores of students in 1990, 1992, 1996, and 2000, but not found to be significantly different from the scores of students in 2003 and 2005.

Grade 8 Achievement-Level Results by Gender

- In the 2007 assessment, 30 percent of male students and 23 percent of female students performed at or above *Proficient* in Arizona. The difference between these percentages was statistically significant.
- The percentage of male students in Arizona's public schools who were at or above *Proficient* in 2007 (30 percent) was smaller than that of males in the nation (33 percent).
- The percentage of female students in Arizona's public schools who were at or above *Proficient* in 2007 (23 percent) was smaller than that of females in the nation (29 percent).
- In Arizona, the percentage of male students performing at or above *Proficient* in 2007 was greater than the corresponding percentages of students in 1990, 1992, 1996, 2000, and 2003, but not significantly different from the percentage of students in 2005.
- In Arizona, the percentage of female students performing at or above *Proficient* in 2007 was greater than the corresponding percentages of students in 1990, 1992, 1996, and 2000, but not significantly different from the corresponding percentages of students in 2003 and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
3-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by gender, assessment year, and jurisdiction: Various years, 1990–2007

Gender, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Male						
1990 ¹ Nation (public)	51	262*	49*	51*	17*	2*
Arizona	50	262*	49*	51*	15*	2*
1992 ¹ Nation (public)	52	266*	45*	55*	20*	3*
Arizona	51	266*	45*	55*	16*	1*
1996 ¹ Nation (public)	52	270*	40*	60*	24*	4*
Arizona	48	271*	39*	61*	20*	2*
2000 ¹ Nation (public)	50	276*	34*	66*	29*	6*
Arizona	50	274	35	65	24	4
2000 Nation (public)	50	273*	38*	62*	26*	5*
Arizona	51	271*	37	63	22*	4
2003 Nation (public)	50	277*	33*	67*	29*	6*
Arizona	51	271*	39	61	21*	3
2005 Nation (public)	51	278*	32*	68*	30*	6*
Arizona	52*	274	36	64	26	5
2007 Nation (public)	51	281	29	71	33	8
Arizona	49	277	32	68	30	6
Female						
1990 ¹ Nation (public)	49	261*	49*	51*	14*	2*
Arizona	50	257*	56*	44*	10*	1*
1992 ¹ Nation (public)	48	267*	44*	56*	20*	3*
Arizona	49	265*	46*	54*	14*	2*
1996 ¹ Nation (public)	48	271*	39*	61*	21*	3*
Arizona	52	265*	46*	54*	16*	2*
2000 ¹ Nation (public)	50	273*	36*	64*	24*	4*
Arizona	50	268*	41	59	18	2
2000 Nation (public)	50	271*	38*	62*	23*	4*
Arizona	49	266*	43*	57*	18*	3
2003 Nation (public)	50	275*	34*	66*	26*	4*
Arizona	49	271	38	62	21	3
2005 Nation (public)	49	277*	33*	67*	27*	5*
Arizona	48*	274	36	64	25	4
2007 Nation (public)	49	279	30	70	29	6
Arizona	51	274	35	65	23	4

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below Basic, 261 or lower; Basic, 262–298; Proficient, 299–332; and Advanced, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Race/Ethnicity

Schools reported the racial/ethnic subgroup that best described the students eligible to be assessed. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Tables 4-A and 4-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in Arizona and the nation by race/ethnicity. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Score "gaps". In the bulleted text that follows, statements that compare the score gap between White and Black or White and Hispanic students first make the comparison for the current year, and then for the initial year of the assessment. Intervening years are not compared. If the size of the score gap has changed significantly from the initial assessment year to the current year, the bullet will indicate a narrowing or widening of the score gap.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 4 Scale Score Results by Race/Ethnicity

- In 2007, White students in Arizona had an average scale score that was higher than the scores of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from the score of Asian/Pacific Islander students.
- In 2007, the average scale score of White students in Arizona was higher than the scores of their corresponding peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the score in 2005.
- In 2007, the average scale score of Black students in Arizona was higher than the scores of their corresponding peers in 1992, 1996, and 2000, but not found to be significantly different from the scores of their corresponding peers in 2003 and 2005.
- In 2007, the average scale score of Hispanic students in Arizona was higher than the scores of their corresponding peers in 1992, 1996, and 2000, but not found to be significantly different from the scores of their corresponding peers in 2003 and 2005.
- In 2007, the average scale score of Asian/Pacific Islander students in Arizona was not found to be significantly different from the scores of their corresponding peers in 2003 and 2005.
- In 2007, the average scale score of American Indian/Alaska Native students in Arizona was higher than the scores of their corresponding peers in 1992, 1996, and 2000, but not found to be significantly different from the scores of their corresponding peers in 2003 and 2005.
- In 2007, Black students had an average score that was lower than that of White students by 28 points. In 1992, the average score for Black students was lower than that of White students by 26 points.
- In 2007, Hispanic students had an average score that was lower than that of White students by 27 points. This performance gap was wider than that of 1992 (22 points).

Grade 4 Achievement-Level Results by Race/Ethnicity

- In Arizona in 2007, the percentage of White students performing at or above *Proficient* was greater than the percentages of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from the percentage of Asian/Pacific Islander students.
- In 2007, the percentages of White and Hispanic students in Arizona performing at or above *Proficient* were greater than the percentages of their respective peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the percentage in 2005.
- In 2007, the percentage of Black students in Arizona performing at or above *Proficient* was greater than the percentages of their respective peers in 1992 and 2000, but not found to be significantly different from the percentages of their respective peers in 2003 and 2005.
- In 2007, the percentage of Asian/Pacific Islander students in Arizona performing at or above *Proficient* was not found to be significantly different from the percentages of their respective peers in 2003 and 2005.
- In 2007, the percentage of American Indian/Alaska Native students in Arizona performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, and 2000, but not found to be significantly different from the percentages of their respective peers in 2003 and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1992–2007

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
White						
1992 ¹ Nation (public)	72*	227*	32*	68*	22*	2*
Arizona	62*	225*	33*	67*	19*	1*
1996 ¹ Nation (public)	71*	230*	27*	73*	25*	3*
Arizona	62*	228*	29*	71*	21*	2*
2000 ¹ Nation (public)	67*	234*	22*	78*	32*	3*
Arizona	56*	230*	26*	74*	25*	2*
2000 Nation (public)	62*	233*	24*	76*	30*	3*
Arizona	55*	230*	28*	72*	24*	2*
2003 Nation (public)	58*	243*	13*	87*	42*	5*
Arizona	50*	241*	15	85	39*	4*
2005 Nation (public)	57*	246*	11*	89*	47*	7*
Arizona	45	243	14	86	43	6
2007 Nation (public)	55	248	9	91	51	8
Arizona	43	246	11	89	48	8
Black						
1992 ¹ Nation (public)	18*	192*	78*	22*	2*	#
Arizona	4	199*	73*	27*	4*	#
1996 ¹ Nation (public)	17	199*	70*	30*	4*	#
Arizona	4	197*	76*	24*	5	#
2000 ¹ Nation (public)	17	204*	64*	36*	5*	#
Arizona	4	207*	62*	38*	6*	2
2000 Nation (public)	17	203*	65*	35*	4*	#
Arizona	4	207*	64*	36*	6*	1
2003 Nation (public)	17	216*	46*	54*	10*	#*
Arizona	4	215	48	52	11	#
2005 Nation (public)	17	220*	40*	60*	13*	1
Arizona	5	217	46	54	13	#
2007 Nation (public)	17	222	37	63	15	1
Arizona	5	219	41	59	16	1

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1992–2007—Continued

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Hispanic						
1992 ¹ Nation (public)	7*	201*	68*	32*	5*	#
Arizona	23*	203*	64*	36*	4*	#
1996 ¹ Nation (public)	9*	204*	63*	37*	7*	#
Arizona	24*	202*	66*	34*	5*	#
2000 ¹ Nation (public)	11*	209*	55*	45*	8*	#
Arizona	27*	205*	60*	40*	6*	#
2000 Nation (public)	16*	207*	59*	41*	7*	#*
Arizona	33*	204*	65*	35*	5*	#
2003 Nation (public)	19*	221*	38*	62*	15*	1*
Arizona	38*	217	44	56	11*	1
2005 Nation (public)	20*	225*	33*	67*	19*	1
Arizona	41	218	43	57	14	1
2007 Nation (public)	21	227	31	69	22	1
Arizona	44	220	39	61	15	#
Asian/Pacific Islander						
1992 ¹ Nation (public)	3*	231*	26*	74*	27*	4*
Arizona	1*	‡	‡	‡	‡	‡
1996 ¹ Nation (public)	3*	225*	35*	65*	20*	5*
Arizona	2*	‡	‡	‡	‡	‡
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	3	231*	26*	74*	26*	5
2000 Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	3	‡	‡	‡	‡	‡
2003 Nation (public)	4*	246*	13*	87*	48*	10*
Arizona	2	244	11	89	41	7
2005 Nation (public)	4	251*	11	89	54*	14
Arizona	3	241	15	85	43	6
2007 Nation (public)	5	254	9	91	59	16
Arizona	3	253	9	91	59	15

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1992–2007—Continued

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
American Indian/Alaska Native						
1992 ¹ Nation (public)	1	‡	‡	‡	‡	‡
Arizona	10*	190*	80*	20*	3*	#
1996 ¹ Nation (public)	1*	‡	‡	‡	‡	‡
Arizona	8	197*	72*	28*	4*	1
2000 ¹ Nation (public)	1	‡	‡	‡	‡	‡
Arizona	9*	192*	79*	21*	2*	#
2000 Nation (public)	1	207*	61*	39*	8*	#
Arizona	5	203*	63	37	3*	#
2003 Nation (public)	1	224*	35*	65*	18*	1
Arizona	6	210	56	44	8	1
2005 Nation (public)	1	227	31	69	22*	2
Arizona	6	216	47	53	14	1
2007 Nation (public)	1	229	28	72	26	3
Arizona	5	216	45	55	15	1
Unclassified²						
1992 ¹ Nation (public)	#*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
1996 ¹ Nation (public)	1*	‡	‡	‡	‡	‡
Arizona	1	‡	‡	‡	‡	‡
2000 ¹ Nation (public)	1*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
2000 Nation (public)	1*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
2003 Nation (public)	1*	236*	20	80	32*	3*
Arizona	#	‡	‡	‡	‡	‡
2005 Nation (public)	1*	240	18	82	38	5
Arizona	#	‡	‡	‡	‡	‡
2007 Nation (public)	1	240	16	84	39	6
Arizona	#	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² The Unclassified category includes students whose school-reported race/ethnicity was "other" or unavailable, or was missing, and whose race/ethnicity category could not be determined from self-reported information.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Scale Score Results by Race/Ethnicity

- In 2007, White students in Arizona had an average scale score that was higher than the scores of Black, Hispanic, and American Indian/Alaska Native students, but was lower than the score of Asian/Pacific Islander students.
- In 2007, the average scale score of White students in Arizona was higher than the scores of their corresponding peers in 1990, 1992, 1996, 2000, and 2003, but not found to be significantly different from the score in 2005.
- In 2007, the average scale score of Black students in Arizona was higher than the scores of their corresponding peers in 1990, 1992, and 2000, but not found to be significantly different from the scores of their corresponding peers in 1996, 2003, and 2005.
- In 2007, the average scale score of Hispanic students in Arizona was higher than the scores of their corresponding peers in 1990, 1992, 1996, and 2000, but not found to be significantly different from the scores of their corresponding peers in 2003 and 2005.
- In 2007, the average scale score of American Indian/Alaska Native students in Arizona was higher than the score in 1990, but not found to be significantly different from the scores of their corresponding peers in 1992, 1996, 2003, and 2005.
- In 2007, Black students had an average score that was lower than that of White students by 23 points. In 1990, the average score for Black students was lower than that of White students by 26 points.
- In 2007, Hispanic students had an average score that was lower than that of White students by 27 points. In 1990, the average score for Hispanic students was lower than that of White students by 29 points.

Grade 8 Achievement-Level Results by Race/Ethnicity

- In Arizona in 2007, the percentage of White students performing at or above *Proficient* was greater than the percentages of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from the percentage of Asian/Pacific Islander students.
- In 2007, the percentage of White students in Arizona performing at or above *Proficient* was greater than the percentages of their respective peers in 1990, 1992, 1996, 2000, and 2003, but not found to be significantly different from the percentage in 2005.
- In 2007, the percentage of Black students in Arizona performing at or above *Proficient* was greater than the percentage in 1990, but not found to be significantly different from the percentages of their respective peers in 1992, 1996, 2000, 2003, and 2005.
- In 2007, the percentage of Hispanic students in Arizona performing at or above *Proficient* was greater than the percentages of their respective peers in 1990, 1992, 1996, and 2000, but not found to be significantly different from the percentages of their respective peers in 2003 and 2005.
- In 2007, the percentage of American Indian/Alaska Native students in Arizona performing at or above *Proficient* was not found to be significantly different from the percentages of their respective peers in 1992, 2003, and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1990–2007

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
White						
1990 ¹ Nation (public)	73*	269*	41*	59*	18*	3*
Arizona	62*	270*	40*	60*	18*	2*
1992 ¹ Nation (public)	72*	276*	34*	66*	25*	3*
Arizona	64*	274*	34*	66*	20*	2*
1996 ¹ Nation (public)	70*	280*	28*	72*	29*	5*
Arizona	64*	277*	30*	70*	24*	3*
2000 ¹ Nation (public)	69*	284*	24*	76*	33*	6*
Arizona	59*	283*	23	77	29*	5*
2000 Nation (public)	63*	283*	25*	75*	33*	6*
Arizona	58*	281*	25*	75*	28*	5
2003 Nation (public)	62*	287*	21*	79*	36*	7*
Arizona	50	284*	22	78	32*	4*
2005 Nation (public)	60*	288*	21*	79*	37*	7*
Arizona	50	288	21	79	38	8
2007 Nation (public)	58	290	19	81	41	9
Arizona	47	289	19	81	40	8
Black						
1990 ¹ Nation (public)	16	236*	79*	21*	5*	#
Arizona	3	245*	70*	30*	4*	#
1992 ¹ Nation (public)	17	236*	81*	19*	2*	#
Arizona	4	253*	68*	32*	5	#
1996 ¹ Nation (public)	16	241*	74*	26*	4*	#
Arizona	3*	256	64*	36*	6	1
2000 ¹ Nation (public)	14*	245*	70*	30*	5*	#*
Arizona	5	247*	64*	36*	7	1
2000 Nation (public)	17	243*	70*	30*	5*	#*
Arizona	4	244*	67*	33*	7	#
2003 Nation (public)	17	252*	61*	39*	7*	#*
Arizona	4	256	55	45	7	1
2005 Nation (public)	17	254*	59*	41*	8*	1
Arizona	5	261	50	50	15	2
2007 Nation (public)	17	259	53	47	11	1
Arizona	5	266	42	58	15	2

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1990–2007—Continued

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Hispanic						
1990 ¹ Nation (public)	7*	245*	67*	33*	7*	1*
Arizona	26*	241*	73*	27*	3*	#
1992 ¹ Nation (public)	8*	247*	67*	33*	6*	#*
Arizona	24*	247*	69*	31*	5*	#
1996 ¹ Nation (public)	9*	250*	62*	38*	8*	1
Arizona	25*	248*	68*	32*	5*	#
2000 ¹ Nation (public)	11*	252*	60*	40*	8*	#*
Arizona	30*	250*	62*	38*	7*	#
2000 Nation (public)	14*	252*	60*	40*	8*	#*
Arizona	32	248*	64*	36*	6*	#
2003 Nation (public)	15*	258*	53*	47*	11*	1
Arizona	37	258	55	45	9	#
2005 Nation (public)	17*	261*	50*	50*	13*	1
Arizona	38	260	52	48	13	1
2007 Nation (public)	19	264	46	54	15	2
Arizona	39	262	48	52	12	1
Asian/Pacific Islander						
1990 ¹ Nation (public)	2*	275*	36*	64*	30*	6*
Arizona	2	‡	‡	‡	‡	‡
1992 ¹ Nation (public)	2*	290	25	75	43	14
Arizona	1*	‡	‡	‡	‡	‡
1996 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	2*	‡	‡	‡	‡	‡
2000 ¹ Nation (public)	4*	286*	27*	73*	40	12
Arizona	3	‡	‡	‡	‡	‡
2000 Nation (public)	4	287*	27*	73*	40	12
Arizona	2	‡	‡	‡	‡	‡
2003 Nation (public)	4	289*	23*	77*	42*	12*
Arizona	2	‡	‡	‡	‡	‡
2005 Nation (public)	5	294	19	81	46	16
Arizona	2	‡	‡	‡	‡	‡
2007 Nation (public)	5	296	18	82	49	17
Arizona	3	303	11	89	52	22

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
4-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, assessment year, and jurisdiction: Various years, 1990–2007—Continued

Race/ethnicity, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
American Indian/Alaska Native						
1990 ¹ Nation (public)	1	‡	‡	‡	‡	‡
Arizona	7	235*	83*	17*	#	#
1992 ¹ Nation (public)	1	‡	‡	‡	‡	‡
Arizona	6	251	62	38	6	#
1996 ¹ Nation (public)	1	‡	‡	‡	‡	‡
Arizona	6	252	64	36	7	#
2000 ¹ Nation (public)	1	264	47	53	14	2
Arizona	3*	‡	‡	‡	‡	‡
2000 Nation (public)	1	263	47	53	13	3
Arizona	3	‡	‡	‡	‡	‡
2003 Nation (public)	1	265	46	54	16	2
Arizona	7	254	61	39	7	#
2005 Nation (public)	1*	266	45	55	14	2
Arizona	5	259	53	47	10	1
2007 Nation (public)	1	265	44	56	17	2
Arizona	7	258	50	50	12	1
Unclassified²						
1990 ¹ Nation (public)	#*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
1992 ¹ Nation (public)	1	258*	55*	45*	8*	#
Arizona	#	‡	‡	‡	‡	‡
1996 ¹ Nation (public)	#*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
2000 ¹ Nation (public)	#*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
2000 Nation (public)	1*	‡	‡	‡	‡	‡
Arizona	#	‡	‡	‡	‡	‡
2003 Nation (public)	1*	276*	30	70	24*	3
Arizona	#	‡	‡	‡	‡	‡
2005 Nation (public)	1*	278	31	69	29	7
Arizona	#	‡	‡	‡	‡	‡
2007 Nation (public)	1	282	28	72	32	8
Arizona	#	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

² The Unclassified category includes students whose school-reported race/ethnicity was "other" or unavailable, or was missing, and whose race/ethnicity category could not be determined from self-reported information.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Student Eligibility for the National School Lunch Program

NAEP collects data on eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA) is designed to ensure that children near or below the poverty line receive nourishing meals. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of lower family income. NAEP first collected information on participation in this program in 1996; therefore, cross-year comparisons to assessments prior to 1996 cannot be made.

Tables 5-A and 5-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in Arizona and the nation by student eligibility for the National School Lunch program. In 2000 only, results were obtained for student samples for which accommodations were permitted and those for which accommodations were not permitted. However, in the text of this report, comparisons to 2000 results refer only to the sample for which accommodations were permitted.

Grade 4 Scale Score Results by Free/Reduced-Price School Lunch Eligibility

- In 2007, students in Arizona eligible for free/reduced-price lunch had an average mathematics scale score of 219. This was lower than that of students in Arizona not eligible for this program (245).
- In 2007, students who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 25 points. In 1996, the average score for students who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 28 points.
- Students in Arizona eligible for free/reduced-price lunch had an average scale score (219) in 2007 that was lower than that of students in the nation who were eligible (227).
- In Arizona, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2007 that was higher than that of eligible students in 1996 and 2000, but not found to be significantly different from that of eligible students in 2003 and 2005.

Grade 4 Achievement-Level Results by Free/Reduced-Price School Lunch Eligibility

- In Arizona in 2007, 15 percent of students who were eligible for free/reduced-price lunch and 46 percent of those who were not eligible for this program performed at or above *Proficient*. These percentages were found to be significantly different from one another.
- For students in Arizona in 2007 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (15 percent) was smaller than the corresponding percentage for their counterparts around the nation (22 percent).
- In Arizona, the percentage of students eligible for free/reduced-priced lunch who performed at or above *Proficient* for 2007 was higher than the corresponding percentages for 1996 and 2000, but not found to be significantly different from the corresponding percentages for 2003 and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
5-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by eligibility for National School Lunch Program, assessment year, and jurisdiction: Various years, 1996–2007

Eligibility status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Eligible						
1996 ¹ Nation (public)	34*	207*	59*	41*	8*	#*
Arizona	36*	202*	66*	34*	5*	#
2000 ¹ Nation (public)	35*	210*	54*	46*	9*	#*
Arizona	40*	205*	60*	40*	7*	#
2000 Nation (public)	40*	208*	57*	43*	7*	#*
Arizona	41*	206*	62*	38*	7*	#
2003 Nation (public)	44*	222*	38*	62*	15*	1*
Arizona	47	217	45	55	12	1
2005 Nation (public)	46	225*	33*	67*	19*	1
Arizona	47	220	42	58	16	1
2007 Nation (public)	46	227	30	70	22	1
Arizona	52	219	40	60	15	1
Not eligible						
1996 ¹ Nation (public)	52	231*	27*	73*	25*	3*
Arizona	44	230*	25*	75*	24*	2*
2000 ¹ Nation (public)	52	236*	21*	79*	33*	4*
Arizona	49	231*	25*	75*	26*	3*
2000 Nation (public)	49	235*	23*	77*	32*	4*
Arizona	47	232*	25*	75*	25*	3*
2003 Nation (public)	52*	244*	12*	88*	45*	6*
Arizona	42	241*	14	86	39*	4*
2005 Nation (public)	52*	248*	10*	90*	50*	8*
Arizona	38	242	15	85	42	5
2007 Nation (public)	53	249	9	91	53	9
Arizona	45	245	12	88	46	7
Information not available						
1996 ¹ Nation (public)	13*	230*	28	72	28*	3
Arizona	20*	218*	42*	58*	14*	1*
2000 ¹ Nation (public)	13*	235	23	77	35	3*
Arizona	11	214*	47*	53*	12*	1*
2000 Nation (public)	11*	236	22	78	35	4
Arizona	12*	211*	54*	46*	9*	1
2003 Nation (public)	4*	235	23	77	34	4
Arizona	11	232*	28*	72*	29*	3
2005 Nation (public)	2*	237	21	79	36	5
Arizona	15*	232*	27*	73*	31*	4
2007 Nation (public)	1	243	17	83	44	8
Arizona	3	255	6	94	64	11

Rounds to zero.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below Basic, 213 or lower; Basic, 214–248; Proficient, 249–281; and Advanced, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Scale Score Results by Free/Reduced-Price School Lunch Eligibility

- In 2007, students in Arizona eligible for free/reduced-price lunch had an average mathematics scale score of 262. This was lower than that of students in Arizona not eligible for this program (286).
- In 2007, students who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 24 points. In 1996, the average score for students who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 23 points.
- Students in Arizona eligible for free/reduced-price lunch had an average scale score (262) in 2007 that was not significantly different from that of students in the nation who were eligible (265).
- In Arizona, students eligible for free/reduced-priced lunch had an average mathematics scale score in 2007 that was higher than that of eligible students in 2000, but not found to be significantly different from that of eligible students in 1996, 2003, and 2005.

Grade 8 Achievement-Level Results by Free/Reduced-Price School Lunch Eligibility

- In Arizona in 2007, 13 percent of students who were eligible for free/reduced-price lunch and 36 percent of those who were not eligible for this program performed at or above *Proficient*. These percentages were found to be significantly different from one another.
- For students in Arizona in 2007 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (13 percent) was not significantly different from the corresponding percentage for their counterparts around the nation (15 percent).
- In Arizona, the percentage of students eligible for free/reduced-priced lunch who performed at or above *Proficient* for 2007 was not found to be significantly different from the corresponding percentages for 1996, 2000, 2003, and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
5-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by eligibility for National School Lunch Program, assessment year, and jurisdiction: Various years, 1996–2007

Eligibility status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Eligible						
1996 ¹ Nation (public)	30*	252*	61*	39*	8*	1*
Arizona	27*	254	63*	37*	8	1
2000 ¹ Nation (public)	28*	255*	56*	44*	10*	1*
Arizona	31*	252*	60*	40*	9	1
2000 Nation (public)	31*	253*	59*	41*	10*	1*
Arizona	32*	251*	62*	38*	8	1
2003 Nation (public)	36*	258*	53*	47*	11*	1*
Arizona	41	258	55	45	9	1
2005 Nation (public)	39*	261*	49*	51*	13*	1*
Arizona	40	260	52	48	12	1
2007 Nation (public)	41	265	45	55	15	2
Arizona	44	262	48	52	13	1
Not eligible						
1996 ¹ Nation (public)	56	279*	29*	71*	29*	5*
Arizona	50	277*	30*	70*	24*	2*
2000 ¹ Nation (public)	55	285*	24*	76*	35*	7*
Arizona	54	280*	27	73	27*	4*
2000 Nation (public)	54*	283*	26*	74*	34*	7*
Arizona	52	279*	28	72	27*	5
2003 Nation (public)	58	287*	22*	78*	37*	7*
Arizona	47	282	25	75	31	4*
2005 Nation (public)	59	288*	21*	79*	39*	8*
Arizona	45*	285	25	75	35	7
2007 Nation (public)	58	291	19	81	42	10
Arizona	53	286	23	77	36	8
Information not available						
1996 ¹ Nation (public)	14*	278	31	69	29	5
Arizona	23*	264*	46*	54*	16	2
2000 ¹ Nation (public)	16*	273	37	63	26	4
Arizona	15*	276	31	69	24	4
2000 Nation (public)	15*	271	38	62	24	4
Arizona	16*	271	38	62	20	4
2003 Nation (public)	6*	278	32	68	29	6
Arizona	12*	274	36	64	22	3
2005 Nation (public)	3*	277	34	66	28	6
Arizona	15*	281	28	72	33	6
2007 Nation (public)	1	274	36	64	28	6
Arizona	3	294	18	82	48	8

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Type of Location

Schools that participated in the assessment were classified as being located in four mutually exclusive types of community: city, suburb, town, and rural. These categories indicate the geographic locations of schools. "City" is a geographical term meaning the principal city of a U.S. Census Bureau-defined Core-Based Statistical Area and is not synonymous with "inner city." The criteria for classifying schools with respect to type of location changed for 2007; therefore, comparisons with prior years are not provided. More detail on the changes for the classification of type of location is available at http://nces.ed.gov/ccd/Rural_Locales.asp.

Tables 6-A and 6-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in Arizona and the nation by type of location (for 2007 only).

Grade 4 Scale Score Results by Type of Location

- In 2007 in Arizona, the average scale score of students attending schools in city locations was lower than the score of students in suburban schools, but was not found to be significantly different from the scores of students in town and rural schools.
- In 2007, students attending public schools in city, town, and rural locations in Arizona had average scale scores that were lower than the average scale scores of students in city, town, and rural locations in the nation.
- In 2007, students attending public schools in suburban locations in Arizona had an average scale score that was not significantly different from the average scale score of students in suburban locations in the nation.

Grade 4 Achievement-Level Results by Type of Location

- In 2007, the percentage of students in Arizona's public schools in city locations who performed at or above *Proficient* was smaller than the corresponding percentage for students in suburban schools, but was not found to be significantly different from the corresponding percentages of students in town and rural schools.
- The percentages of students in Arizona's public schools in town and rural locations who performed at or above *Proficient* in 2007 were lower than those of students in town and rural locations in the nation.
- The percentages of students in Arizona's public schools in city and suburban locations who performed at or above *Proficient* in 2007 were not found to be significantly different from those of students in city and suburban locations in the nation.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
6-A**

The Nation's Report Card 2007 State Assessment

Percentage of fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by type of location, assessment year, and jurisdiction: 2007

Type of location, year, and jurisdiction	Percentage of students	Average scale score	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
City						
2007 Nation (public)	29*	233*	26	74	32	5
Arizona	51	230	29	71	29	4
Suburb						
2007 Nation (public)	37*	243	15	85	44	7
Arizona	24	240	19	81	40	7
Town						
2007 Nation (public)	12	238*	18	82	36*	4*
Arizona	13	231	23	77	25	1
Rural						
2007 Nation (public)	22*	240*	16*	84*	39*	5*
Arizona	13	228	31	69	27	2

* Value is significantly different from the value for Arizona.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Grade 8 Scale Score Results by Type of Location

- In 2007 in Arizona, the average scale score of students attending schools in city locations was not found to be significantly different from the scores of students in suburban, town, and rural schools.
- In 2007, students attending public schools in rural locations in Arizona had an average scale score that was lower than the average scale score of students in rural locations in the nation.
- In 2007, students attending public schools in city, suburban, and town locations in Arizona had average scale scores that were not significantly different from the average scale scores of students in city, suburban, and town locations in the nation.

Grade 8 Achievement-Level Results by Type of Location

- In 2007, the percentage of students in Arizona's public schools in city locations who performed at or above *Proficient* was not found to be significantly different from the corresponding percentages of students in suburban, town, and rural schools.
- The percentage of students in Arizona's public schools in rural locations who performed at or above *Proficient* in 2007 was lower than that of students in rural locations in the nation.
- The percentages of students in Arizona's public schools in city, suburban, and town locations who performed at or above *Proficient* in 2007 were not found to be significantly different from those of students in city, suburban, and town locations in the nation.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
6-B**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by type of location, assessment year, and jurisdiction: 2007

Type of location, year, and jurisdiction	Percentage of students	Average scale score	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
City						
2007 Nation (public)	28*	273	38	62	25	5
Arizona	44	274	35	65	25	5
Suburb						
2007 Nation (public)	36*	285	26	74	36	9
Arizona	22	281	29	71	33	8
Town						
2007 Nation (public)	13	280	29	71	29	5*
Arizona	13	275	34	66	25	2
Rural						
2007 Nation (public)	22	282*	26	74	32*	6*
Arizona	21	272	35	65	22	2

* Value is significantly different from the value for Arizona.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

Parents' Highest Level of Education

Eighth-grade students who participated in the NAEP 2007 assessment were asked to indicate the highest level of education they thought their father and their mother had completed. Five response options—did not finish high school, graduated from high school, some education after high school, graduated from college, and "I don't know"—were offered. The highest level of education reported for either parent was used in the analysis. Fourth-graders' replies to this question were not provided in NAEP reports because their responses in previous NAEP assessments were unreliable, and a large percentage of them chose the "I don't know" option.

The results by highest level of parental education are shown in table 7.

Grade 8 Scale Score Results by Parents' Highest Level of Education

- In 2007, students in Arizona who reported that a parent had graduated from college had an average scale score that was higher than the average scores of students with a parent in any of the following education categories: did not finish high school and graduated from high school.
- In 2007, students in Arizona who reported that a parent had graduated from college had an average scale score that was not significantly different from the scores of students with a parent in the following education category: some education after high school.
- In 2007, the average scale score for students in Arizona who reported that a parent had graduated from college, or had graduated from high school, or had some education after high school was higher than the scores of students in 1990, 1992, and 1996, but not found to be significantly different from the scores of students in 2000, 2003, and 2005.
- In 2007, the average scale score for students in Arizona who reported that a parent had not finished high school was higher than the scores of students in 1990, 1992, 1996, and 2000, but not found to be significantly different from the scores of students in 2003 and 2005.

Grade 8 Achievement-Level Results by Parents' Highest Level of Education

- In 2007, the percentage of students performing at or above *Proficient* in Arizona who reported that a parent had graduated from college was higher than the percentage for students whose parents' highest level of education was in any of the following education categories: did not finish high school, graduated from high school, and some education after high school.
- In 2007, the respective percentages of students reporting that a parent had graduated from college, or had graduated from high school, or had some education after high school who performed at or above *Proficient* were higher than the corresponding percentages of students in 1990, 1992, and 1996, but not found to be significantly different from the corresponding percentages of students in 2000, 2003, and 2005.
- In 2007, the percentage of students reporting that a parent had not finished high school who performed at or above *Proficient* was higher than the corresponding percentages of students in 1990 and 1992, but not found to be significantly different from the corresponding percentages of students in 1996, 2000, 2003, and 2005.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
7**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by student-reported highest level of parental education, assessment year, and jurisdiction: Various years, 1990–2007

Parental education level, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Did not finish high school						
1990 ¹ Nation (public)	10	241*	76*	24*	3*	#
Arizona	9*	240*	75*	25*	3*	#
1992 ¹ Nation (public)	8	249*	66*	34*	6*	1
Arizona	10	246*	70*	30*	3*	#
1996 ¹ Nation (public)	8	254*	56*	44*	8	1
Arizona	9	247*	70*	30*	4	#
2000 ¹ Nation (public)	7*	255*	55*	45*	8*	1
Arizona	9	247*	62	38	5	#
2000 Nation (public)	8	253*	57*	43*	7*	#
Arizona	9	241*	68*	32*	3	#
2003 Nation (public)	7*	256*	56*	44*	9*	1
Arizona	10	257	55	45	7	#
2005 Nation (public)	8*	259*	52*	48*	11*	1
Arizona	11	255	56	44	7	#
2007 Nation (public)	8	263	48	52	12	1
Arizona	12	261	49	51	9	1
Graduated from high school						
1990 ¹ Nation (public)	25*	255*	59*	41*	8*	#
Arizona	22*	251*	65*	35*	6*	#
1992 ¹ Nation (public)	25*	257*	55*	45*	10*	1*
Arizona	21*	257*	57*	43*	7*	#
1996 ¹ Nation (public)	23*	260*	50*	50*	12*	1
Arizona	18	260*	53*	47*	10*	1
2000 ¹ Nation (public)	21*	263*	47*	53*	16*	1
Arizona	19	260	48	52	10	#
2000 Nation (public)	21*	260*	49*	51*	15*	1
Arizona	18	262	47	53	10	1
2003 Nation (public)	18	267*	42*	58*	16*	2*
Arizona	17	266	45	55	16	1
2005 Nation (public)	18*	267*	42*	58*	17*	2*
Arizona	16	266	44	56	15	2
2007 Nation (public)	18	270	40	60	19	2
Arizona	17	267	42	58	19	2

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
7**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by student-reported highest level of parental education, assessment year, and jurisdiction: Various years, 1990–2007—Continued

Parental education level, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Some education after high school						
1990 ¹ Nation (public)	17	267*	43*	57*	15*	3*
Arizona	20*	265*	46*	54*	14*	1*
1992 ¹ Nation (public)	18*	270*	40*	60*	20*	3*
Arizona	22*	270*	37*	63*	15*	2
1996 ¹ Nation (public)	19*	279*	29*	71*	26*	4
Arizona	21*	273*	33*	67*	18*	1
2000 ¹ Nation (public)	18	279*	28*	72*	27*	3
Arizona	19	278	30	70	24	3
2000 Nation (public)	18	277*	30*	70*	26*	3*
Arizona	19	277	29	71	22	3
2003 Nation (public)	18*	280*	27*	73*	28*	4
Arizona	18	277	30	70	22	2
2005 Nation (public)	18*	280*	27*	73*	28*	4*
Arizona	17	278	30	70	27	3
2007 Nation (public)	17	283	24	76	32	5
Arizona	17	282	24	76	30	4
Graduated from college						
1990 ¹ Nation (public)	39*	274*	34*	66*	25*	4*
Arizona	37	272*	38*	62*	21*	3*
1992 ¹ Nation (public)	40*	279*	30*	70*	31*	5*
Arizona	36	278*	31*	69*	27*	3*
1996 ¹ Nation (public)	40*	281*	28*	72*	34*	7*
Arizona	38	281*	26	74	29*	4*
2000 ¹ Nation (public)	43*	286*	24*	76*	39*	9
Arizona	38	285	23	77	34	7
2000 Nation (public)	41*	285*	25*	75*	38*	9
Arizona	37	284	24	76	34	7
2003 Nation (public)	45	287*	23*	77*	39*	8*
Arizona	38	284	25	75	33	6
2005 Nation (public)	45*	289*	22*	78*	41*	10*
Arizona	38	290	20	80	42	10
2007 Nation (public)	46	291	20	80	43	11
Arizona	39	287	22	78	39	9

See notes at end of table.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
7**

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by student-reported highest level of parental education, assessment year, and jurisdiction: Various years, 1990–2007—Continued

Parental education level, year, and jurisdiction	Percentage of students	Average scale score	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
Unknown						
1990 ¹ Nation (public)	9*	240*	71*	29*	5*	#
Arizona	11*	243*	70*	30*	5*	#
1992 ¹ Nation (public)	9*	251*	62*	38*	9*	#
Arizona	12*	249*	67*	33*	4*	#
1996 ¹ Nation (public)	11	253*	59*	41*	10*	1*
Arizona	14	250*	67*	33*	5*	#
2000 ¹ Nation (public)	11	255*	55*	45*	11*	1
Arizona	14	255	58	42	10	#
2000 Nation (public)	12	253*	59*	41*	9*	1*
Arizona	16	251	62	38	8	#
2003 Nation (public)	11	258*	53*	47*	12*	1*
Arizona	17	255	59	41	6*	#
2005 Nation (public)	11*	260*	51*	49*	13*	1
Arizona	17	256	57	43	10	1
2007 Nation (public)	12	263	48	52	15	2
Arizona	16	261	49	51	13	2

Rounds to zero.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

Toward a More Inclusive NAEP: Students With Disabilities and English Language Learners

It is important to assess all students selected in the complex statistical sampling process, including students with disabilities (SD) and students who are classified by their schools as English language learners (ELL). Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria.

School staff make the decisions about whether to include an SD or ELL student in a NAEP assessment, and which testing accommodations, if any, they should receive. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure is used to select students at each grade being tested. Students are selected on a random basis, without regard to SD or ELL status. Once the students are selected, the schools identify which have SD or ELL status. School staff who are familiar with these students are asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Inclusion in NAEP of an SD or ELL student is encouraged if that student (a) participated in the regular state academic assessment in the subject being tested, and (b) if that student can participate in NAEP with the accommodations NAEP allows. Even if the student did not participate in the regular state assessment, or took the state's alternate assessment, or if he/she needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. (Examples of testing accommodations not allowed in NAEP are giving the reading assessment in a language other than English, or reading the reading passages aloud to the student. Also, extending testing over several days is not allowed for NAEP because NAEP administrators are in each school only one day.)

The results displayed in this report and in other publications of the NAEP 2007 mathematics results are based on representative samples that include SD and ELL students who were assessed either with or without accommodations, based on NAEP's guidelines.

Percentages of students excluded from NAEP may vary considerably across states, and within a state across years. Comparisons of results across states and within a state across years should be interpreted with caution if the exclusion rates vary widely. The percentages of assessed students classified as SD or ELL, as well as their NAEP performance in each participating state and jurisdiction, are available in an interactive database at the NAEP website at <http://nces.ed.gov/nationsreportcard/>.

Prior to 2000, no testing accommodations were made available to the samples of students with disabilities and the English language learners in state NAEP mathematics assessments that served as the basis for reported results. In the 1996 national and 2000 national and state mathematics assessments, NAEP researchers drew a second representative sample of schools. Accommodations were made available for students in this sample who required them, provided the accommodation did not change the nature of what was tested. For example, students could be assessed one-on-one or in small groups, receive extended time, or use a large-print test book. In mathematics, students had the option of having the test questions read aloud in English, or using a bilingual English-Spanish test book. However, in the mathematics assessment, students were not allowed to use calculators for any questions on which calculators were not permitted. NAEP has used these comparable samples to study the effects of allowing accommodations for students categorized as SD or ELL in the assessments. A series of technical research papers covering various NAEP subject areas has been published with the results of these comparisons (visit <http://nces.ed.gov/nationsreportcard/about/inclusion.asp#research>).

Tables 8-A and 8-B display the percentages of students with disabilities and English language learners in Arizona identified, excluded, and assessed under standard and accommodated conditions at grades 4 and 8.

Tables 9-A and 9-B show the percentage of students assessed in Arizona by disability status and their performance on the NAEP assessment in terms of average scale scores and percentages performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* for grades 4 and 8.

Tables 10-A and 10-B present the percentage of students assessed in Arizona by ELL status, their average scale scores, and their performance in terms of the percentage below *Basic*, the percentages at or above *Basic*, at

or above *Proficient*, and at *Advanced*.

Table 11 presents the total number of grade 4 and grade 8 students assessed and the percentage of students sampled who were excluded.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
8-A**

The Nation's Report Card 2007 State Assessment

Fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP mathematics, by assessment year and testing status as a percentage of all students: Various years, 1992–2007

Year and testing status		SD and/or ELL		SD		ELL	
		Arizona	Nation	Arizona	Nation	Arizona	Nation
1992 ¹	Identified	15	10	7	7	8	3
	Excluded	5	7	3	5	2	2
	Assessed under standard conditions	10	4	4	3	6	1
1996 ¹	Identified	21	16	10	12	12	4
	Excluded	12	6	7	5	7	2
	Assessed under standard conditions	9	9	3	7	6	2
2000	Identified	25	19	11	13	16	7
	Excluded	4	4	3	3	3	1
	Assessed under standard conditions	12	10	4	5	8	5
	Assessed with accommodations	9	5	4	4	5	1
2003	Identified	27	22	12	14	19	11
	Excluded	5	4	3	3	2	1
	Assessed under standard conditions	18	10	5	4	15	7
	Assessed with accommodations	5	8	3	7	2	2
2005	Identified	29	23	11	14	20	10
	Excluded	4	3	3	3	2	1
	Assessed under standard conditions	17	10	3	4	14	7
	Assessed with accommodations	8	10	5	8	5	3
2007	Identified	25	23	11	14	16	11
	Excluded	3	3	2	3	2	1
	Assessed under standard conditions	14	10	4	3	11	7
	Assessed with accommodations	7	10	5	8	3	3

¹ Accommodations were not permitted for this assessment.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
8-B**

The Nation's Report Card 2007 State Assessment

Eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP mathematics, by assessment year and testing status as a percentage of all students: Various years, 1990–2007

Year and testing status		SD and/or ELL		SD		ELL	
		Arizona	Nation	Arizona	Nation	Arizona	Nation
1990 ¹	Identified	12	—	7	—	5	—
	Excluded	5	—	3	—	1	—
	Assessed under standard conditions	7	—	3	—	4	—
1992 ¹	Identified	12	10	6	8	6	2
	Excluded	6	6	4	5	2	2
	Assessed under standard conditions	7	4	2	3	4	1
1996 ¹	Identified	17	11	9	9	9	3
	Excluded	9	5	5	4	4	1
	Assessed under standard conditions	8	7	4	5	5	2
2000	Identified	19	14	11	11	10	4
	Excluded	3	4	2	3	1	1
	Assessed under standard conditions	11	7	6	5	6	3
	Assessed with accommodations	4	3	2	2	2	1
2003	Identified	24	19	11	14	16	6
	Excluded	4	4	3	3	2	1
	Assessed under standard conditions	15	8	4	5	12	4
	Assessed with accommodations	6	7	4	6	2	1
2005	Identified	23	19	10	13	14	6
	Excluded	5	4	3	3	2	1
	Assessed under standard conditions	12	7	3	3	10	4
	Assessed with accommodations	6	8	4	7	2	1
2007	Identified	19	18	11	13	10	7
	Excluded	3	4	3	4	1	1
	Assessed under standard conditions	9	6	3	2	7	4
	Assessed with accommodations	6	8	5	6	2	2

¹ Accommodations were not permitted for this assessment.

— Not available.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
9-A**

The Nation's Report Card 2007 State Assessment

Percentage of assessed fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by students with disabilities (SD) status, assessment year, and jurisdiction: Various years, 2000–2007

SD status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
SD						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	10*	198*	71*	29*	6*	1*
Arizona	8	208	61	39	9	1
2003 Nation (public)	11	214*	50*	50*	12*	1*
Arizona	9	210	56	44	8	#
2005 Nation (public)	12	218*	44*	56*	16*	2
Arizona	9	207	58	42	9	1
2007 Nation (public)	11	220	40	60	19	2
Arizona	9	209	54	46	13	2
Not SD						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	90*	227*	33*	67*	24*	3*
Arizona	92	220*	42*	58*	16*	1*
2003 Nation (public)	89	236*	21*	79*	34*	4*
Arizona	91	231*	27	73	27*	2*
2005 Nation (public)	88	240*	17*	83*	38*	5*
Arizona	91	232	27	73	30	4
2007 Nation (public)	89	241	16	84	41	6
Arizona	91	234	24	76	32	4

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
9-B**

The Nation's Report Card 2007 State Assessment

Percentage of assessed eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by students with disabilities (SD) status, assessment year, and jurisdiction: Various years, 2000–2007

SD status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
SD						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	8*	229*	80*	20*	4*	#
Arizona	9	229	77	23	4	#
2003 Nation (public)	11*	242*	71*	29*	6*	1*
Arizona	9	240	75	25	3	#
2005 Nation (public)	11*	244*	69*	31*	7	1
Arizona	7	242	69	31	6	#
2007 Nation (public)	9	246	67	33	8	1
Arizona	8	237	73	27	4	#
Not SD						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	92*	275*	35*	65*	26*	5*
Arizona	91	272*	37*	63*	22*	4
2003 Nation (public)	89*	280*	29*	71*	30*	5*
Arizona	91	274*	35*	65*	23*	3*
2005 Nation (public)	89*	281*	28*	72*	31*	6*
Arizona	93	277	33	67	27	5
2007 Nation (public)	91	284	26	74	33	7
Arizona	92	279	30	70	28	5

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
10-A**

The Nation's Report Card 2007 State Assessment

Percentage of assessed fourth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by English language learners (ELL) status, assessment year, and jurisdiction: Various years, 2000–2007

ELL status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
ELL						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	6*	199*	70*	30*	4*	#
Arizona	14	195*	79*	21*	1	#
2003 Nation (public)	9*	214*	51*	49*	9*	#*
Arizona	18	207	62	38	6	#
2005 Nation (public)	10*	216	46*	54*	11*	1
Arizona	19	208	60	40	7	#
2007 Nation (public)	10	217	44	56	13	1
Arizona	15	203	64	36	6	1
Not ELL						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	94*	226*	34*	66*	24*	3*
Arizona	86	223*	38*	62*	18*	2*
2003 Nation (public)	91*	236*	21*	79*	34*	4*
Arizona	82	234*	23	77	30*	3*
2005 Nation (public)	90*	239*	18*	82*	38*	5*
Arizona	81	235	23	77	33	4
2007 Nation (public)	90	242	16	84	42	6
Arizona	85	237	20	80	35	5

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
10-B**

The Nation's Report Card 2007 State Assessment

Percentage of assessed eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP mathematics, by English language learners (ELL) status, assessment year, and jurisdiction: Various years, 2000–2007

ELL status, year, and jurisdiction	Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
ELL						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	3*	234*	80*	20*	2*	#
Arizona	9	231	83	17	2	1
2003 Nation (public)	5*	241*	74*	26*	5	1
Arizona	14*	246	73	27	4	#
2005 Nation (public)	6*	244	71	29	6	1
Arizona	13	245	72	28	5	#
2007 Nation (public)	6	245	70	30	6	1
Arizona	9	238	76	24	4	1
Not ELL						
2000 ¹ Nation (public)	‡	‡	‡	‡	‡	‡
Arizona	‡	‡	‡	‡	‡	‡
2000 Nation (public)	97*	273*	37*	63*	26*	5*
Arizona	91	272*	36*	64*	22*	4
2003 Nation (public)	95*	278*	31*	69*	29*	5*
Arizona	86*	275*	33	67	24*	3*
2005 Nation (public)	94*	280*	30*	70*	30*	6*
Arizona	87	279	31	69	29	5
2007 Nation (public)	94	282	27	73	33	7
Arizona	91	279	29	71	29	5

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different from the value for the same jurisdiction in 2007.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scale: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities and English language learners in the NAEP samples and by changes in sample sizes.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

NAEP 2007 Mathematics Report for Arizona (Embargoed Draft)

**Table
11**

The Nation's Report Card 2007 State Assessment

Number of fourth- and eighth-grade public school students assessed in NAEP mathematics and percentage excluded, by state: 2007

State/jurisdiction	Grade 4		Grade 8	
	Number assessed	Weighted percentage excluded	Number assessed	Weighted percentage excluded
Nation (public)	189,800	3	147,300	4
Alabama	3,400	2	2,700	3
Alaska	3,000	2	2,500	4
Arizona	3,700	3	2,700	3
Arkansas	3,100	3	2,400	2
California	10,400	2	8,000	2
Colorado	3,400	2	2,700	2
Connecticut	3,200	1	2,500	2
Delaware	3,300	5	2,600	7
Florida	5,500	3	3,900	3
Georgia	4,800	2	3,400	5
Hawaii	3,400	1	2,700	2
Idaho	3,600	2	2,800	2
Illinois	4,900	5	3,800	6
Indiana	3,200	3	2,600	6
Iowa	3,000	1	2,800	2
Kansas	2,900	3	2,600	4
Kentucky	3,400	3	2,500	7
Louisiana	3,000	2	2,300	3
Maine	3,000	3	2,500	5
Maryland	3,600	4	2,600	7
Massachusetts	4,200	5	3,400	9
Michigan	3,300	3	2,500	5
Minnesota	3,600	2	2,800	2
Mississippi	3,400	1	2,500	2
Missouri	3,200	4	2,700	5
Montana	3,000	2	2,500	3
Nebraska	2,900	3	2,600	3
Nevada	4,100	3	2,500	4
New Hampshire	3,300	2	2,700	3
New Jersey	3,400	2	2,700	3
New Mexico	3,200	4	2,700	3
New York	4,600	2	3,600	3
North Carolina	5,600	2	4,100	2
North Dakota	2,800	4	2,200	6
Ohio	3,800	5	3,400	7
Oklahoma	3,300	5	2,400	8
Oregon	3,500	3	2,600	3
Pennsylvania	3,500	2	2,700	4
Rhode Island	3,200	2	2,600	3
South Carolina	3,600	2	2,600	5
South Dakota	3,200	1	2,800	2
Tennessee	3,200	6	2,700	6
Texas	9,400	5	6,800	6
Utah	3,700	2	2,700	3
Vermont	2,700	2	1,900	4
Virginia	3,600	5	2,600	7

Washington	3,800	3	2,900	4
West Virginia	3,100	1	2,800	2
Wisconsin	3,200	3	2,600	5
Wyoming	2,700	2	1,900	2
Other jurisdictions				
District of Columbia	1,900	6	1,800	10
DoDEA ¹	3,300	2	1,600	2

¹ Department of Defense Education Activity Schools (domestic and overseas).

NOTE: The numbers of students assessed are rounded to the nearest hundred.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

Appendix A

Overview of Procedures Used for the NAEP 2007 Mathematics Assessment

This appendix provides an overview of the NAEP 2007 mathematics assessment's primary components—framework, development, administration, scoring, and analysis. The information provided about the state and national assessments covers grades 4 and 8 (grade 12 was not assessed in 2007), as well as information on NAEP's Trial Urban District Assessment (TUDA).

The NAEP 2007 Mathematics Framework

Evolution of the Framework

The National Assessment Governing Board, created by Congress in 1988, is responsible for formulating policy for NAEP. The Governing Board is specifically charged with developing assessment objectives and test specifications. The mathematics framework used for the 1990 assessment was developed under contract with the Council of Chief State School Officers (CCSSO). The NAEP mathematics assessment that was administered in 2007 is comparable to the previous assessments in years 1990, 1992, 1996, 2000, 2003, and 2005, based on the 1990 framework. The mathematics framework for 2007 can be viewed and downloaded from the Governing Board website at http://www.nagb.org/pubs/m_framework_05/761607-Math%20Framework.pdf.

The CCSSO project considered objectives and frameworks for mathematics instruction at the state, district, and school levels. The project also examined curricular frameworks on which previous NAEP assessments were based, consulted with leaders in mathematics education, and considered a draft version of the National Council of Teachers of Mathematics (NCTM) *Curriculum and Evaluation Standards for School Mathematics*.¹ This project resulted in a "content by mathematical ability" matrix used to guide the design of both the NAEP 1990 and 1992 mathematics assessments. The design was reported in *Mathematics Objectives: 1990 Assessment*.²

The 1996 assessment was based on the first update of the NAEP 1990 mathematics framework after the release of the NCTM *Curriculum and Evaluation Standards for School Mathematics* in 1989.³ This update was conducted by the College Board and reflected refinements in the earlier framework specifications, while ensuring comparability of results across the 1990, 1992, and 1996 assessments. The result was a "content by mathematical ability by mathematical power" matrix that was used to guide the NAEP 1996, 2000, and 2003 mathematics assessments. Because the framework for 2000 and 2003 was the same as for the 1996 update, the assessment results from 1990 to 2003 can be compared.

In 2000, the Governing Board again awarded a contract to CCSSO to update the mathematics assessment framework for 2005, based on the framework used for the 1996 and 2000 assessments. CCSSO established a steering committee, representative of national policy organizations, mathematics associations, research mathematicians, business and industry, and educators, to develop policy recommendations for the mathematics assessment and to guide the direction and scope of the project. Care was taken to ensure that the diversity of opinion regarding mathematics issues was represented and was intended to

- reflect recent curricular emphases and objectives;
- include what various policymakers, scholars, practitioners, and interested citizens believe should be in the assessment;
- maintain the short-term trend lines in grades 4 and 8 that began with the 1990 mathematics assessment, to permit the reporting of changes in student achievement over time; and
- include clearer and more specific objectives for each grade level.

Content of the Framework

The framework for the 2007 assessment was the same as the framework for the 2005 assessment. Therefore, the 2007 assessment results can be compared with the results from the NAEP mathematics assessments going back to 1990.

The 2005 framework classifies items in two dimensions—content area and mathematical complexity. Although the names of the content areas, as well as some of the topics in those areas, may have changed from one framework to the next, there is a consistent focus across frameworks on collecting information on student performance in five key areas: number properties and operations, measurement, geometry, data analysis and probability, and algebra. The dimensions of mathematical ability and power in the 1996–2003 frameworks were replaced in the 2005 framework with the dimension of mathematical complexity. The purpose remains to make sure that NAEP assesses a variety of ways of knowing and doing mathematics. Mathematical complexity addresses the demands that an item makes on the student, assuming the student is familiar with the mathematics of the task.

Sample released questions for each content area at all three grade levels can be viewed at the NAEP website at <http://nces.ed.gov/nationsreportcard/itmrls/>. Questions released from the 2005 and 2007 assessments are classified by content area and level of complexity. Those released from assessments administered in 2003 and earlier are classified by content area and mathematical ability required.

The five content areas that constitute the NAEP mathematics assessment are described below. These content areas apply to each of the three grades assessed by NAEP, although grade 12 was not assessed in 2007.

Descriptions of the Five NAEP Mathematics Content Areas

Number Properties and Operations

This content area focuses on students' ability to represent numbers, order numbers, compute with numbers, make estimates appropriate to given situations, use ratios and proportional reasoning, and apply number properties and operations to solve real-world problems. This content area also addresses number sense—comfort in dealing with numbers—and addresses students' understanding of what numbers tell us, equivalent ways to represent numbers, and the use of numbers to represent attributes of real-world objects and quantities. At grade 4, the focus is on whole numbers and simple fractions; at grade 8, the focus extends to include rational numbers; at grade 12 the focus extends to include real numbers.

Measurement

This content area focuses on students' understanding of measurement attributes such as capacity, weight/mass, time, and temperature, as well as on the geometric attributes of length, area, and volume. Students may be asked to select appropriate units and tools for measuring, to measure length with a ruler at all three grades, to measure angles with a protractor at grades 8 and 12, and to solve application problems related to units of measurement. At grade 4, the focus is on time, temperature, capacity, length, weight, perimeter, and area. At grades 8 and 12, students are also expected to understand and demonstrate knowledge of volume and surface area. Knowledge of both customary and metric units is expected. Students may be asked to solve problems that require conversions between (with conversion factors given) or within systems of measurement.

Geometry

By grade 4, students are expected to be familiar with simple plane figures such as lines, circles, triangles, and rectangles, as well as with solid figures such as cubes, spheres, and cylinders. They are also expected to be able to recognize examples of parallel and perpendicular lines. As students move to middle school and beyond, understanding of two- and three-dimensional figures should deepen, with increased understanding of the properties of these figures, especially parallelism, perpendicularity, angle relations in polygons, congruence, similarity, and the Pythagorean theorem. Students at all grades are expected to show knowledge of symmetry and transformations of shapes, and to identify images resulting from flips, rotations, or turns. At grade 4, justification and reasoning are informal, while both formal and informal justification and reasoning are expected at grades 8 and 12.

Data Analysis and Probability

This content area focuses on students' skills in four areas: data representation, characteristics of data sets, experiments and samples, and probability. Data representation focuses on reading and interpreting data, solving problems based on data and, at the upper grades, evaluating the effectiveness of the presentation of data. At grade 4, students are expected to use standard statistical measures such as the median, range, or mode, and to compare sets of related data; at grades 8 and 12, they are also expected to show understanding of other statistical

concepts, such as the impact of outliers and the line of best fit in a scatterplot. By grade 8, students are expected to have some knowledge of experiments and samples, such as being able to recognize possible sources of bias in sampling and to identify random versus nonrandom sampling; by grade 12, they are also expected to make inferences from sample results. Students at all grades are expected to use statistics and statistical concepts to analyze and communicate interpretations of data. Students may be asked to solve problems that address appropriate methods of gathering data, the visual exploration of data, ways to represent data, or the development and evaluation of arguments based on the analysis of data. Probability is assessed informally at grade 4 and more formally at grades 8 and 12.

Algebra

This content area focuses on students' understanding of patterns, relations, and functions; algebraic representation; variables, expressions and operations; and equations and inequalities. At grade 4, students are expected to show knowledge of simple patterns and expressions; at grade 8, this knowledge extends to include linear equations; and at grade 12, it extends further to include quadratic and exponential equations and functions. Representational skills, such as students' ability to translate between different forms of representation (e.g., from a written description to an equation), the ability to graph and interpret points located on a coordinate system, and the ability to use algebraic properties to draw a conclusion are assessed in this area. Students may be asked to express relationships algebraically as number sentences, equations, or inequalities; manipulate algebraic expressions; or solve and interpret algebraic equations and inequalities that are grade-level appropriate. The use of algebraic concepts and procedures to solve contextual problems is an important component of the algebra content area.

The assessment framework specifies not only the particular areas that should be assessed, but also the percentage of the assessment questions that should be devoted to each of the content areas. The target percentage distributions for content areas as specified in the frameworks from 1990 through 2007 are presented in table A-1. The target percentages at grade 8 differ from those at grade 4 because of a shift in curricular emphasis. For example, in grade 4 there is more emphasis on number properties and operations than on algebra. In grade 8, the percentage of algebra items increases, and the percentage of number properties and operations items decreases. The actual content of the assessment is close to the targeted distribution.

Target percentage distribution of NAEP mathematics questions, by grade and content area: Various years, 1990–2007

Grade and content area	1990 and 1992	1996, 2000, and 2003	2005 and 2007	Content area ²
Grade 4				
Number sense, properties, and operations	45	40	40	Number properties and operations
Measurement	20	20	20	Measurement
Geometry and spatial sense	15	15	15	Geometry
Data analysis, statistics, and probability	10	10	10	Data analysis and probability
Algebra and functions	10	15	15	Algebra
Grade 8				
Number sense, properties, and operations	30	25	20	Number properties and operations
Measurement	15	15	15	Measurement
Geometry and spatial sense	20	20	20	Geometry
Data analysis, statistics, and probability	15	15	15	Data analysis and probability
Algebra and functions	20	25	30	Algebra
Grade 12¹				
Number sense, properties, and operations	†	†	10	Number properties and operations
Measurement	†	†		

Geometry and spatial sense	†	†	30	Measurement and geometry ³
Data analysis, statistics, and probability	†	†	25	Data analysis and probability
Algebra and functions	†	†	35	Algebra

† Not applicable. Item distributions from previous years are not comparable because a new framework was used starting in 2005.

¹ Grade 12 was not assessed in 2007.

² Content area labels were revised in 2005/2007 frameworks, but test item content remains comparable to previous years.

³ At grade 12, the five content areas were collapsed into four, with geometry and measurement combined into one. This reflects the fact that most of the measurement topics suitable for grade 12 students are geometrical.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

The Assessment Design

Each student who participated in the NAEP 2007 mathematics assessment received a booklet containing four sections: two sets of cognitive questions, a set of general background questions, and a set of subject-specific background questions. Assessments for each grade consisted of 10 sets of cognitive questions, or "blocks." Some items from the 1990, 1992, 1996, 2000, 2003, and 2005 assessments were carried forward to 2007 to allow for the measurement of trends across time. Three new blocks were developed for the 2007 assessment for each of grades 4 and 8, as specified by the framework. Each student was given 50 minutes to answer the cognitive questions, followed by 10 minutes for a background questionnaire.

Three types of questions are used in the assessment: multiple-choice, short constructed-response, and extended constructed-response. Table A-2 shows the distribution of questions administered from 1990 to 2007 by type for each grade level. The total number of questions administered has varied somewhat across the assessment years due to the inclusion of special study blocks in certain years. The number of questions used in the main scaling, however, has remained relatively constant.

Percentage distribution of administered NAEP mathematics questions, by grade and question type: Various years, 1990–2007

Grade and question type	1990	1992	1996	2000	2003	2005	2007
Grade 4							
Multiple-choice	71	61	51	60	63	64	69
Short constructed-response	29	36	41	34	33	32	27
Extended constructed-response	0	3	8	6	4	4	4
Grade 8							
Multiple-choice	78	62	56	63	65	69	74
Short constructed-response	22	34	38	32	29	28	23
Extended constructed-response	0	3	7	6	5	4	4
Grade 12							
Multiple-choice	†	†	†	†	—	67	—
Short constructed-response	†	†	†	†	—	28	—
Extended constructed-response	†	†	†	†	—	5	—

— Not available. Data were not collected at grade 12 in 2003 and 2007.

† Not applicable. Item distributions from previous years are not comparable because a new framework was used starting in 2005.

NOTE: Short constructed-response questions included in the 1990 and 1992 assessments were scored dichotomously (i.e., credit or no credit). Beginning with the 1996 assessment, some of the new short constructed-response questions were scored allowing for partial credit. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

The assessment design permits broad coverage of the five mathematics content areas and levels of mathematical complexity at each grade, while minimizing the time burden for any one student. This was accomplished through the use of matrix sampling of items in which representative samples of students took various portions of the entire pool of assessment questions. Individual students are required to take only a small portion of the assessment, but the aggregate results across the entire assessment allow broad reporting of mathematics abilities for the targeted population.

In addition to matrix sampling of test items, the assessment design used a procedure for distributing blocks across booklets that controlled for position and context effects. Students received different blocks of questions in their booklets according to a procedure that assigned blocks of questions to test booklets, balancing the positioning of blocks across booklets and balancing the pairing of blocks within booklets. Every block of questions was paired with every other block. The procedure also cycles the booklets for administration so that, typically, only a few students in any assessment session receive the same booklet.

Three other instruments supplemented the student assessment booklets and provided data relating to the assessment: a teacher questionnaire, a school questionnaire, and questionnaires about students with disabilities (SD) and/or English language learners (ELL). The teacher questionnaire was administered to the mathematics teachers of the fourth- and eighth-grade students participating in the assessment. The questionnaire focused on the teacher's general background and experience, the teacher's background related to mathematics, and classroom information about mathematics instruction. The school questionnaire was given to the principal or other administrator in each participating school. The questions asked about school policies, programs, facilities, and the demographic composition and background of the students and teachers at the school.

The SD and the ELL questionnaires were completed by a school staff member knowledgeable about those students selected to participate in the assessment who were identified as having an Individualized Education Program (IEP) or equivalent plan (for reasons other than being gifted or talented) or as being an English language learner. An SD or ELL questionnaire was completed for each identified student in the NAEP sample. Each SD or ELL questionnaire asked about the student (for example, type of disability or language spoken other than English) and the special instructional programs (i.e., proportion of time spent in mainstream/general education classes, or specially designed instruction) in which he or she participated.

NAEP Samples

National Sample

The national results presented in this report are based on nationally representative probability samples of fourth- and eighth-grade students. The 2007 NAEP sample design integrated the state assessment sample into the national assessment sample. This integrated sample design has been used in NAEP assessments since 2002. Prior to 2002, separate samples were drawn for the NAEP national and state assessments. For 2007, the sampling frame for public schools was the Common Core of Data (CCD) file corresponding to the 2004–05 school year. The CCD file provided the frame for all regular public, state-operated public, Bureau of Indian Affairs, and Department of Defense domestic schools that were open during the 2004–05 school year. The sampling frame for private schools was developed from the 2003–04 Private School Survey (PSS), which was carried out by the U.S. Census Bureau for the National Center for Education Statistics (NCES). The PSS is a biennial mail survey of all private schools in the 50 states and the District of Columbia. The combined sample was chosen using a stratified two-stage design that involved sampling students from selected schools (public and nonpublic).

Each selected school that participated in the assessment and each student assessed represents a portion of the population of interest. Sampling weights are needed to make valid inferences from the student samples to the respective populations from which they were drawn. Sampling weights account for disproportionate representation of students from different states and for students who attend nonpublic schools. Sampling weights also account for lower sampling rates for very small schools and are used to adjust for school and student nonresponse.

For the 2007 national assessment, as for the 2003 and 2005 national assessments, accommodations for students with disabilities (SD) and English language learners (ELL) were permitted for the entire sample of students. This differs from the 1996 and 2000 national assessments, in which data were collected from samples of students where assessment accommodations were not permitted and from samples of students where accommodations were permitted. In 2007, accommodations were offered when a student had an Individualized Education Program (IEP) indicating the need for accommodation because of a disability, was protected under Section 504 of the Rehabilitation Act of 1973 because of a disability, or was identified as being an English language learner, and/or was normally offered accommodations in other assessment situations.⁴ All other students were asked to participate in the assessment under standard conditions. Prior to 1996, testing accommodations (e.g., extended time, small group testing) were not permitted for students with disabilities and English language learners selected to participate in the NAEP mathematics assessments.

The sample sizes and target populations for the 2007 mathematics assessment are listed for the nation and

states in table A-3. In 2007, Department of Defense Education Activity (DoDEA) schools are reported as a single jurisdiction; prior to 2005, domestic (Department of Defense Domestic Dependent Elementary and Secondary Schools or DDESS) and overseas (Department of Defense Dependents Schools or DoDDS) schools were considered separate jurisdictions.

In the 2007 assessment, as in the 2002, 2003, and 2005 NAEP assessments, a number of large urban school districts participated on a voluntary basis in a Trial Urban District Assessment (TUDA), and larger than normal NAEP samples were drawn in these districts to permit reliable reporting of student group performance. Reports from these Trial Urban District Assessments (TUDAs) for 2002, 2003, and 2005 are available on the NAEP website at <http://nces.ed.gov/nationsreportcard/>; a report for 2007 is forthcoming. The sample sizes and target populations for the districts participating in TUDA are given in table A-4.

Sample sizes and target populations in NAEP mathematics at grades 4 and 8, by state: 2007

State/jurisdiction	Grade 4		Grade 8	
	Sample size	Target population	Sample size	Target population
Nation	204,000	3,798,000	160,100	3,897,000
Public	196,100	3,443,000	154,300	3,547,000
Nonpublic	8,000	355,000	5,800	350,000
Alabama	3,500	56,000	2,800	57,000
Alaska	3,000	9,000	2,600	9,000
Arizona	3,800	72,000	2,800	74,000
Arkansas	3,200	34,000	2,400	34,000
California	10,700	437,000	8,200	465,000
Colorado	3,400	54,000	2,700	58,000
Connecticut	3,300	41,000	2,500	41,000
Delaware	3,500	9,000	2,800	10,000
Florida	5,700	194,000	4,100	192,000
Georgia	4,900	119,000	3,500	117,000
Hawaii	3,500	13,000	2,700	13,000
Idaho	3,700	21,000	2,800	20,000
Illinois	5,100	152,000	4,000	152,000
Indiana	3,300	72,000	2,700	80,000
Iowa	3,100	32,000	2,800	36,000
Kansas	3,000	31,000	2,700	33,000
Kentucky	3,400	45,000	2,700	46,000
Louisiana	3,100	51,000	2,400	47,000
Maine	3,100	13,000	2,700	15,000
Maryland	3,700	61,000	2,800	63,000
Massachusetts	4,500	68,000	3,700	69,000
Michigan	3,500	115,000	2,600	120,000
Minnesota	3,700	57,000	2,900	61,000
Mississippi	3,400	39,000	2,600	36,000
Missouri	3,300	63,000	2,800	70,000
Montana	3,100	11,000	2,600	11,000
Nebraska	3,000	19,000	2,700	21,000
Nevada	4,300	30,000	2,700	28,000
New Hampshire	3,400	14,000	2,800	16,000
New Jersey	3,400	103,000	2,800	106,000
New Mexico	3,300	23,000	2,800	26,000
New York	4,700	194,000	3,800	203,000
North Carolina	5,800	107,000	4,200	104,000
North Dakota	3,000	7,000	2,300	8,000
Ohio	4,200	119,000	3,800	138,000
Oklahoma	3,400	44,000	2,600	42,000
Oregon	3,600	39,000	2,700	39,000
Pennsylvania	3,600	124,000	2,800	139,000
Rhode Island	3,300	11,000	2,700	12,000
South Carolina	3,600	48,000	2,700	51,000
South Dakota	3,200	9,000	2,900	9,000
Tennessee	3,500	71,000	2,900	75,000
Texas	9,900	321,000	7,300	297,000

Utah	3,800	37,000	2,800	36,000
Vermont	2,800	6,000	2,000	7,000
Virginia	3,800	86,000	2,800	92,000
Washington	3,900	71,000	3,000	77,000
West Virginia	3,200	20,000	2,800	21,000
Wisconsin	3,300	59,000	2,700	62,000
Wyoming	2,800	6,000	1,900	7,000
Other jurisdictions				
BIE ¹	1,200	3,000	1,100	3,000
District of Columbia	2,100	5,000	2,000	5,000
DoDEA ²	3,300	7,000	1,600	6,000

¹Bureau of Indian Education.

²Department of Defense Education Activity (overseas and domestic schools).

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Detail may not sum to totals because of rounding. Data for DoDEA and BIE schools are counted in the overall Nation total, but not in the Nation (public) total. Data for the District of Columbia public schools are counted, along with states, in Nation (public).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

Table A-4

Student sample sizes and target populations for Trial Urban District Assessment (TUDA) in mathematics at grades 4 and 8, by urban district: 2007

District	Grade 4		Grade 8	
	Sample size	Target population	Sample size	Target population
Atlanta	1,500	4,000	900	3,000
Austin	2,000	6,000	1,500	5,000
Boston	1,400	4,000	1,200	4,000
Charlotte	1,800	10,000	1,400	9,000
Chicago	2,400	30,000	1,800	25,000
Cleveland	1,300	4,000	1,200	4,000
District of Columbia	2,100	5,000	2,000	5,000
Houston	2,900	15,000	2,000	13,000
Los Angeles	2,700	54,000	2,100	53,000
New York City	2,600	67,000	2,000	70,000
San Diego	1,700	10,000	1,400	9,000

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Trial Urban District Mathematics Assessment.

State Samples

The results provided in this report of the 2007 state assessment in mathematics are based on state-level samples of fourth- and eighth-grade public school students. The samples were selected using a two-stage sample design that first selected schools within each state or other jurisdiction and then selected students within schools. The samples were weighted to allow valid inferences about the populations of interest. Participation rates for the states and other jurisdictions were calculated the same way that rates were computed for the nation. Tables A-5 and A-6 display weighted school and student participation rates for the state samples at grades 4 and 8, respectively.

Table A-5

Public school and student participation rates in NAEP mathematics at grade 4, by state: 2007

State/jurisdiction	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation (public)	100	100	7,310	95	189,800
Alabama	100	100	110	94	3,400
Alaska	100	98	180	93	3,000
Arizona	99	99	120	94	3,700
Arkansas	100	100	120	93	3,100
California	100	100	330	95	10,400
Colorado	99	99	120	95	3,400
Connecticut	100	100	110	95	3,200
Delaware	100	100	100	95	3,300

Florida	100	100	160	94	5,500
Georgia	100	100	160	95	4,800
Hawaii	100	100	120	94	3,400
Idaho	100	100	130	95	3,600
Illinois	98	99	180	95	4,900
Indiana	100	100	110	95	3,200
Iowa	99	99	140	96	3,000
Kansas	100	100	140	95	2,900
Kentucky	100	100	120	95	3,400
Louisiana	100	100	110	94	3,000
Maine	100	100	150	94	3,000
Maryland	100	100	110	95	3,600
Massachusetts	100	100	170	94	4,200
Michigan	100	100	120	94	3,300
Minnesota	98	98	130	95	3,600
Mississippi	100	100	120	95	3,400
Missouri	100	100	130	95	3,200
Montana	100	99	190	95	3,000
Nebraska	100	100	160	95	2,900
Nevada	100	100	110	95	4,100
New Hampshire	100	100	130	93	3,300
New Jersey	98	99	110	95	3,400
New Mexico	99	100	130	94	3,200
New York	99	99	150	93	4,600
North Carolina	100	100	170	95	5,600
North Dakota	100	98	210	96	2,800
Ohio	100	100	160	94	3,800
Oklahoma	100	100	140	95	3,300
Oregon	100	100	140	94	3,500
Pennsylvania	100	100	110	95	3,500
Rhode Island	100	100	110	95	3,200
South Carolina	100	100	110	96	3,600
South Dakota	100	100	190	95	3,200
Tennessee	100	100	120	95	3,200
Texas	100	100	300	96	9,400
Utah	100	100	110	94	3,700
Vermont	100	100	190	94	2,700
Virginia	100	100	110	96	3,600
Washington	100	98	130	94	3,800
West Virginia	100	100	150	95	3,100
Wisconsin	100	100	130	95	3,200
Wyoming	100	100	170	94	2,700
Other jurisdictions					
District of Columbia	100	100	120	94	1,900
DoDEA ¹	100	99	120	93	3,300

¹ Department of Defense Education Activity (overseas and domestic schools).

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred. Columns of percentages have different denominators; see accompanying text for definitions. Detail may not sum to totals because of rounding. Substitutions of reserve schools for initially sampled schools were not needed in 2007 because school participation rates were high.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

Public school and student participation rates in NAEP mathematics at grade 8, by state: 2007

State/jurisdiction	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation (public)	100	100	6,400	92	147,300
Alabama	100	100	120	94	2,700
Alaska	100	99	110	91	2,500
Arizona	100	100	130	91	2,700
Arkansas	100	100	130	91	2,400

California	100	100	310	91	8,000
Colorado	96	98	120	92	2,700
Connecticut	97	97	100	91	2,500
Delaware	100	100	50	92	2,600
Florida	100	100	160	91	3,900
Georgia	100	100	120	93	3,400
Hawaii	100	100	70	92	2,700
Idaho	99	99	100	93	2,800
Illinois	100	100	200	93	3,800
Indiana	100	100	110	92	2,600
Iowa	100	100	140	94	2,800
Kansas	100	100	150	93	2,600
Kentucky	100	100	110	93	2,500
Louisiana	100	100	110	92	2,300
Maine	96	98	130	93	2,500
Maryland	100	100	110	90	2,600
Massachusetts	100	100	130	92	3,400
Michigan	100	100	120	91	2,500
Minnesota	98	99	140	92	2,800
Mississippi	100	100	110	94	2,500
Missouri	100	100	130	93	2,700
Montana	100	98	170	93	2,500
Nebraska	100	100	120	93	2,600
Nevada	100	100	80	89	2,500
New Hampshire	98	98	90	92	2,700
New Jersey	98	97	110	92	2,700
New Mexico	100	100	110	90	2,700
New York	100	100	160	90	3,600
North Carolina	100	100	150	92	4,100
North Dakota	99	98	180	95	2,200
Ohio	100	100	190	91	3,400
Oklahoma	100	100	150	91	2,400
Oregon	100	100	110	92	2,600
Pennsylvania	100	100	110	92	2,700
Rhode Island	100	100	60	92	2,600
South Carolina	100	100	110	93	2,600
South Dakota	100	99	140	94	2,800
Tennessee	100	100	120	93	2,700
Texas	100	100	220	93	6,800
Utah	100	100	100	91	2,700
Vermont	100	100	120	93	1,900
Virginia	100	100	110	94	2,600
Washington	100	100	130	91	2,900
West Virginia	100	100	120	93	2,800
Wisconsin	98	98	130	93	2,600
Wyoming	100	100	80	92	1,900
Other jurisdictions					
District of Columbia	100	100	50	88	1,800
DoDEA ¹	100	98	70	94	1,600

¹ Department of Defense Education Activity (overseas and domestic schools).

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred. Columns of percentages have different denominators; see accompanying text for definitions. Detail may not sum to totals because of rounding. Substitutions of reserve schools for initially sampled schools were not needed in 2007 because school participation rates were high.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

District Samples

Results from the 2007 mathematics assessment are also reported for district-level samples of fourth- and eighth-grade students in the large urban school districts that participated in the Trial Urban District Assessment (TUDA)—Atlanta City, Austin, Boston School District, Charlotte-Mecklenburg Schools, City of Chicago School District 299, Cleveland Municipal School District, Houston Independent School District, Los Angeles Unified, New York City Public Schools, and San Diego City Unified. The District of Columbia, which is regularly included in NAEP

assessments as a jurisdiction, also participated in the TUDA. The sample of students in the urban school districts represents an augmentation of the sample of students who would usually be selected as part of the state samples. These samples allow reliable reporting of student groups within these districts. Furthermore, all students at more local geographic sampling levels are assumed to be part of broader samples. For example, Houston is one of the urban districts included in the TUDA. Data from students tested in the Houston sample were used to report results for Houston, but also contributed to the Texas and national estimates. Participation rates for the urban district samples are presented in table A-7.

Public school and student participation rates for Trial Urban District Assessment in mathematics, by grade and urban district: 2007

Grade and district	School participation		Student participation	
	Student-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Grade 4				
Atlanta	100	50	95	1,500
Austin	100	60	95	1,900
Boston	100	60	93	1,300
Charlotte	100	50	95	1,700
Chicago	100	90	95	2,300
Cleveland	100	60	93	1,100
District of Columbia	100	120	94	1,900
Houston	100	80	97	2,800
Los Angeles	100	80	95	2,700
New York City	100	80	93	2,500
San Diego	100	60	95	1,700
Grade 8				
Atlanta	100	20	91	900
Austin	100	20	92	1,500
Boston	100	30	91	1,100
Charlotte	100	30	90	1,300
Chicago	100	100	94	1,700
Cleveland	100	80	89	1,100
District of Columbia	100	50	88	1,800
Houston	100	50	90	1,900
Los Angeles	100	70	91	2,000
New York City	100	80	89	2,000
San Diego	100	30	91	1,300

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred. Substitutions of reserve schools for initially sampled schools were not needed in 2007 because school participation rates were high. The percentages for school-weighted and student-weighted school participation are both at 100 percent for the participating districts in 2007. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Trial Urban District Mathematics Assessment.

Standards for State Sample Participation and Reporting of Results

In carrying out the 2007 state assessment program, the NAEP program in the National Center for Education Statistics (NCES) established participation rate standards that jurisdictions were required to meet for their results to be reported. Participation rates before substitution needed to be at least 80 percent for schools and at least 85 percent for students. In the 2007 mathematics assessment, at both the fourth and eighth grades, all jurisdictions met NAEP participation rate standards and the National Assessment Governing Board standard of 85 percent school participation. Further information on the NCES guidelines used to report results in the state assessments, and the guidelines for notations when there was some risk of nonresponse bias in the reported results prior to the 2003 assessments, can be found in the NAEP 2000 mathematics report card (NCES 2001-517, see appendix A, "Standards for Sample Participation and Reporting of Results").

Inclusion of Students With Disabilities (SD) and/or English Language Learners (ELL)

It is NAEP's intent to assess all selected students from the target population. Therefore, every effort is made to

ensure that all selected students who are capable of participating in the assessment are assessed. Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria. These criteria were revised in 1996 to communicate more clearly a presumption of inclusion except under special circumstances. According to these criteria, students who had an Individualized Education Program (IEP) or were protected under Section 504 of the Rehabilitation Act of 1973 were to be included in the NAEP assessment except when

- the school's IEP team determined that the student could not participate because the student's cognitive functioning was so severely impaired that the student could not participate, or
- the student's IEP required that the student had to be tested with an accommodation or adaptation that NAEP does not allow, and the student could not demonstrate his or her knowledge without that accommodation.

All English language learners who received academic instruction in English for one year or more were to be included in the assessment.

Participation of SD/ELL Students in the NAEP Samples

Testing all sampled students is the best way for NAEP to ensure that the statistics generated by the assessment are as representative as possible of the performance of the entire national population and the populations of participating jurisdictions. However, all groups of students include certain proportions that cannot be tested in large-scale assessments (such as students who have profound mental disabilities) or who can only be tested through the use of testing accommodations such as extra time, one-on-one administration, or use of magnifying equipment. Some students with disabilities and some English language learners cannot show on a test what they know and can do unless they are provided with accommodations. When such accommodations are not allowed, students requiring such adjustments are often excluded from large-scale assessments such as NAEP. This phenomenon has become more common since the 1990s, particularly with the passage of the 1997 Individuals with Disabilities Education Act (IDEA), which led schools and states to identify increasing proportions of students as needing accommodations on assessments to best show what they know and can do.⁵ Furthermore, Section 504 of the Rehabilitation Act of 1973 requires that, when students with disabilities are tested, schools must provide them with appropriate accommodations so that the test results accurately reflect students' achievement. In addition, as the proportion of English language learners in the population has increased, some states have started offering accommodations such as translations of assessments or the use of bilingual dictionaries as part of the assessments.

Before 1996, NAEP did not allow any testing under nonstandard conditions, and accommodations were not permitted. At that time, NAEP samples were able to include almost all sampled students in standard assessment sessions. However, as the influence of IDEA grew more widespread, the failure to provide accommodations led to increasing levels of exclusion in the assessment. Such increases posed two threats to the program: they threatened the stability of trend lines (because excluding more students in one assessment year than in another might lead to apparent rather than real differences), and they made NAEP samples less than optimally representative of target populations.

A multipart strategy was adopted as a response to this challenge. The program had to move toward allowing the same assessment accommodations that were afforded students in state and district testing programs for NAEP samples to be as inclusive as possible. However, to allow accommodations would represent a change in testing conditions that might affect measurement of changes over time. Therefore, beginning with the 1996 national assessments (in mathematics and science) and the 1998 state assessments (reading and writing), and up to 2000, NAEP assessed a series of parallel samples of students. In one set of samples, testing accommodations were not permitted; this allowed NAEP to maintain the measurement of achievement trends. Parallel samples in which accommodations were permitted were also assessed. By having two overlapping samples⁶ and two sets of related data points, NAEP could meet two core program goals. First, data trends could be maintained. Second, parallel trend lines could be reported during the interim until the program transitioned to a sample with accommodations permitted as its only reporting format. Starting in 2002, NAEP has used only the more inclusive procedures, in which assessment accommodations are permitted. In mathematics, national and state data from 1990, 1992, 1996, and 2000 are reported for the sample in which accommodations were not permitted. National and state data for the sample in which accommodations were permitted are reported for 2000, 2003, 2005, and 2007. National-only data for the accommodated samples are reported for 1996.

To make it possible to evaluate both the impact of increasing exclusion rates in some jurisdictions and differences between jurisdictions, complete data on exclusion in all years are included in this appendix. Because the exclusion rates may affect trend measurement within a jurisdiction, readers should consider the magnitude of

exclusion rate changes when interpreting score changes in jurisdictions. In addition, different rates of exclusion may influence the meaning of state comparisons. Thus, exclusion data should be reviewed in this context as well.

Table A-8 presents the percentages of all public and nonpublic school students who were identified as students with disabilities (SD) or as English language learners (ELL), or both, for assessments where accommodations were not permitted. The table also includes the percentages of all students who were excluded SD and/or ELL and the percentages of all students who were assessed SD and/or ELL for those assessments. The denominator for these percentages includes assessed students plus excluded students; it does not include sampled students who were absent or refused to participate. Tables A-9 through A-14 show similar information by state and jurisdiction.

Table A-15 presents the percentages of all public and nonpublic school students who were identified as SD and/or ELL for assessments where accommodations were permitted. This table also includes the percentages of all students who were SD and/or ELL who were excluded, assessed, assessed without accommodations, and assessed with accommodations. Similar information is presented for states and jurisdictions in tables A-16 through A-21, and for districts that participated in the Trial Urban District Assessment in tables A-22 and A-23.

In the 2007 national sample, 3 percent of all students at grade 4 and 4 percent of all students at grade 8 were excluded from the assessment (see table A-15). Across the various jurisdictions that participated in the 2007 state assessment, the percentage of students excluded ranged from 1 to 6 percent at grade 4 (see table A-16) and from 1 to 9 percent at grade 8 (see table A-19). At the district level, between 1 and 13 percent of students were excluded at grade 4 (see table A-22) and between 2 and 13 percent were excluded at grade 8 (see table A-23).

Percentage of fourth- and eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted: 1992 and 1996

Student characteristics	1992	1996
Grade 4		
SD and/or ELL		
Identified	9	14
Excluded	6	6
Assessed	3	8
SD		
Identified	7	11
Excluded	4	5
Assessed	3	6
ELL		
Identified	3	3
Excluded	2	1
Assessed	1	2
Grade 8		
SD and/or ELL		
Identified	9	11
Excluded	6	4
Assessed	4	6
SD		
Identified	7	9
Excluded	4	4
Assessed	3	5
ELL		
Identified	2	3
Excluded	2	1
Assessed	1	2

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1996 Mathematics Assessments.

Percentage of fourth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state: 1992, 1996, and 2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	10	7	4	16	6	9	16	7	9
Alabama	10	5	6	12	6	5	13	6	7
Alaska	—	—	—	20	4	16	—	—	—
Arizona	15	5	10	21	12	9	25	12	13
Arkansas	12	5	6	10	7	3	14	7	7
California	28	12	16	33	16	17	33	9	24
Colorado	10	5	5	15	8	7	—	—	—
Connecticut	14	7	7	16	8	8	15	10	5
Delaware	12	5	6	14	7	7	—	—	—
Florida	17	8	8	19	10	9	—	—	—
Georgia	10	5	4	13	7	6	11	7	4
Hawaii	13	6	8	14	6	9	19	10	9
Idaho	9	3	6	—	—	—	16	6	10
Illinois	—	—	—	—	—	—	17	10	6
Indiana	7	3	4	11	5	6	11	7	5
Iowa	9	3	6	13	6	7	15	10	5
Kansas	—	—	—	—	—	—	16	7	9
Kentucky	8	3	5	10	6	4	12	8	3
Louisiana	8	4	4	14	8	7	16	8	8
Maine	14	6	8	15	8	7	16	10	6
Maryland	11	4	7	14	8	7	12	9	4
Massachusetts	18	7	11	18	9	9	19	10	9
Michigan	7	5	2	11	6	5	11	8	3
Minnesota	9	3	6	14	6	8	16	6	10
Mississippi	7	5	2	8	6	2	6	4	2
Missouri	12	4	7	14	5	9	15	10	6
Montana	—	—	—	10	5	5	12	5	7
Nebraska	13	4	8	15	5	10	18	8	10
Nevada	—	—	—	16	9	8	20	10	9
New Hampshire	12	4	8	—	—	—	—	—	—
New Jersey	11	6	6	11	6	5	—	—	—
New Mexico	15	7	8	22	12	10	31	12	19
New York	12	5	6	15	8	7	16	12	4
North Carolina	12	4	8	14	7	7	16	13	3
North Dakota	9	2	7	11	4	7	12	6	6
Ohio	10	6	4	—	—	—	12	10	2
Oklahoma	13	7	6	—	—	—	20	10	10
Oregon	—	—	—	19	9	10	18	8	11
Pennsylvania	9	4	5	9	5	4	—	—	—
Rhode Island	15	6	10	18	6	12	23	12	11
South Carolina	10	5	5	12	6	7	17	7	10
Tennessee	12	4	8	13	6	6	11	4	7
Texas	17	8	9	24	10	14	25	15	10
Utah	10	4	6	13	6	7	14	7	7
Vermont	—	—	—	14	6	8	15	11	5
Virginia	11	5	6	14	7	7	16	11	5
Washington	—	—	—	13	5	8	—	—	—
West Virginia	9	4	4	13	8	5	13	10	3
Wisconsin	11	5	5	12	8	4	19	12	8
Wyoming	10	4	7	13	4	9	15	6	9
Other jurisdictions									
District of Columbia	11	9	2	14	11	3	19	9	10
DoDEA ¹	—	—	—	9	4	5	11	5	6

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, and 2000 Mathematics Assessments.

Percentage of fourth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state: 1992, 1996, and 2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	7	5	3	12	5	7	12	6	6
Alabama	10	4	6	11	6	5	12	6	7
Alaska	—	—	—	13	4	10	—	—	—
Arizona	7	3	4	10	7	3	11	6	4
Arkansas	11	5	6	9	6	3	13	7	6
California	7	3	4	8	5	3	8	3	5
Colorado	8	4	4	12	7	5	—	—	—
Connecticut	10	4	6	14	7	7	11	8	3
Delaware	11	5	6	12	6	6	—	—	—
Florida	13	7	6	14	7	7	—	—	—
Georgia	9	5	4	11	6	5	9	6	4
Hawaii	10	5	5	10	4	5	13	8	5
Idaho	8	3	5	—	—	—	12	5	6
Illinois	—	—	—	—	—	—	11	7	4
Indiana	6	3	3	11	5	6	11	6	4
Iowa	8	3	5	11	5	6	14	10	4
Kansas	—	—	—	—	—	—	12	6	6
Kentucky	8	3	5	10	6	4	11	8	3
Louisiana	7	4	3	13	7	6	15	7	8
Maine	14	6	8	14	7	7	16	10	6
Maryland	10	3	7	13	7	6	11	8	3
Massachusetts	15	6	9	15	7	8	14	8	6
Michigan	7	5	2	10	6	4	9	7	2
Minnesota	7	3	4	11	5	6	12	4	7
Mississippi	7	5	2	8	6	2	6	4	2
Missouri	12	4	7	14	5	9	15	9	5
Montana	—	—	—	10	5	5	11	5	5
Nebraska	12	4	8	14	4	10	16	6	9
Nevada	—	—	—	9	5	4	10	6	4
New Hampshire	12	4	8	—	—	—	—	—	—
New Jersey	8	3	5	9	5	4	—	—	—
New Mexico	12	6	6	14	8	6	15	9	6
New York	7	3	3	10	5	5	11	9	2
North Carolina	11	3	8	13	6	6	14	12	2
North Dakota	8	2	7	10	3	7	12	6	6
Ohio	10	6	4	—	—	—	12	10	2
Oklahoma	11	7	4	—	—	—	16	10	6
Oregon	—	—	—	13	6	7	14	6	7
Pennsylvania	8	3	5	8	4	4	—	—	—
Rhode Island	10	4	7	13	5	8	16	9	7
South Carolina	10	5	5	12	5	7	17	7	9
Tennessee	11	4	8	12	6	6	10	4	7
Texas	9	5	5	12	7	5	15	10	5
Utah	9	4	5	11	5	6	9	5	4
Vermont	—	—	—	14	6	8	14	10	4
Virginia	10	5	5	12	6	6	13	10	3
Washington	—	—	—	10	5	6	—	—	—
West Virginia	9	4	4	13	8	5	13	10	3
Wisconsin	9	5	5	10	7	3	15	10	5
Wyoming	9	3	6	12	4	8	13	5	8
Other jurisdictions									
District of Columbia	8	7	1	9	7	1	14	7	7
DoDEA ¹	—	—	—	8	4	4	8	4	4

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, and 2000 Mathematics Assessments.

Percentage of fourth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state: 1992, 1996, and 2000

State/jurisdiction	1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	3	2	1	4	2	2	6	2	3
Alabama	#	#	#	#	#	#	1	#	#
Alaska	—	—	—	8	1	6	—	—	—
Arizona	8	2	6	12	7	6	16	7	9
Arkansas	1	#	#	#	#	#	1	#	1
California	22	10	12	26	12	14	27	7	20
Colorado	2	1	1	4	2	2	—	—	—
Connecticut	4	2	1	3	2	1	4	2	1
Delaware	1	1	#	2	1	1	—	—	—
Florida	4	2	2	6	3	3	—	—	—
Georgia	1	1	#	2	2	1	2	1	1
Hawaii	4	2	3	5	1	4	7	3	4
Idaho	2	1	1	—	—	—	5	2	4
Illinois	—	—	—	—	—	—	7	4	2
Indiana	#	#	#	#	#	#	1	1	#
Iowa	1	#	1	2	1	1	1	1	#
Kansas	—	—	—	—	—	—	5	2	3
Kentucky	#	#	#	#	#	#	#	#	#
Louisiana	1	#	1	1	1	#	1	1	1
Maine	#	#	#	#	#	#	1	#	#
Maryland	1	1	1	1	1	#	2	2	#
Massachusetts	3	1	2	4	2	1	6	3	3
Michigan	1	1	#	2	1	1	2	2	1
Minnesota	2	#	2	3	1	2	5	2	3
Mississippi	#	#	#	#	#	#	#	#	#
Missouri	#	#	#	1	#	#	1	#	#
Montana	—	—	—	#	#	#	2	#	2
Nebraska	1	#	1	2	1	1	4	3	1
Nevada	—	—	—	8	4	4	11	5	6
New Hampshire	#	#	#	—	—	—	—	—	—
New Jersey	4	2	1	2	1	1	—	—	—
New Mexico	4	1	2	10	5	5	20	6	14
New York	5	2	3	6	3	3	6	4	3
North Carolina	1	#	#	2	1	1	3	2	1
North Dakota	1	#	#	#	#	#	1	#	#
Ohio	1	#	1	—	—	—	1	#	#
Oklahoma	2	#	1	—	—	—	5	2	4
Oregon	—	—	—	6	3	3	6	2	3
Pennsylvania	1	1	#	1	1	#	—	—	—
Rhode Island	6	3	3	5	2	4	7	3	4
South Carolina	#	#	#	#	#	#	1	1	#
Tennessee	#	#	#	1	1	#	1	#	#
Texas	9	4	5	13	5	9	13	7	5
Utah	1	1	#	2	1	1	6	3	3
Vermont	—	—	—	1	#	#	2	1	1
Virginia	1	1	1	2	1	1	4	2	2
Washington	—	—	—	3	1	2	—	—	—
West Virginia	#	#	#	#	#	#	#	#	#
Wisconsin	1	1	1	2	1	1	5	3	3
Wyoming	1	#	1	1	#	#	2	1	2

Other jurisdictions												
District of Columbia	4	2	1	6	4	1	6	3				4
DoDEA ¹	—	—	—	2	1	1	3	1				2

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1992 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, and 2000 Mathematics Assessments.

Percentage of eighth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state: Various years, 1990–2000

State/jurisdiction	1990			1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	—	—	—	10	6	4	11	5	7	15	7	8
Alabama	9	5	4	10	5	5	13	7	6	14	5	9
Alaska	—	—	—	—	—	—	15	5	10	—	—	—
Arizona	12	5	7	12	6	7	17	9	8	19	9	10
Arkansas	11	7	3	11	6	5	11	7	4	14	8	5
California	15	7	8	20	8	12	20	10	10	27	9	18
Colorado	10	4	5	10	4	5	12	4	8	—	—	—
Connecticut	11	6	5	14	7	8	15	8	7	16	10	6
Delaware	9	4	5	10	4	6	13	9	4	—	—	—
Florida	11	6	5	13	6	7	16	10	6	—	—	—
Georgia	7	3	3	8	5	3	10	7	3	11	7	3
Hawaii	10	4	5	13	5	8	12	5	7	20	7	13
Idaho	6	2	4	7	3	4	—	—	—	14	5	9
Illinois	9	5	4	—	—	—	—	—	—	15	8	7
Indiana	7	5	2	9	5	4	12	6	7	12	7	5
Iowa	10	4	6	11	4	6	13	5	7	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	14	6	8
Kentucky	7	5	3	9	5	4	9	5	5	14	9	4
Louisiana	6	4	2	7	4	3	10	6	4	13	6	7
Maine	—	—	—	11	4	6	12	5	7	15	9	6
Maryland	11	4	6	11	5	6	12	7	5	13	11	3
Massachusetts	—	—	—	18	8	9	17	8	9	19	12	7
Michigan	8	4	4	9	6	3	9	5	4	11	7	4
Minnesota	9	3	6	7	3	4	11	3	8	15	5	10
Mississippi	—	—	—	10	7	3	11	7	4	11	7	3
Missouri	—	—	—	11	4	6	12	7	5	15	9	6
Montana	6	2	4	—	—	—	9	3	6	12	5	6
Nebraska	9	3	6	10	4	6	12	4	8	13	3	10
Nevada	—	—	—	—	—	—	16	8	8	16	10	6
New Hampshire	12	4	8	12	5	7	15	4	11	—	—	—
New Jersey	12	7	5	14	7	7	13	7	6	—	—	—
New Mexico	9	6	3	12	5	7	18	8	10	25	12	14
New York	12	6	6	13	8	4	14	8	6	16	13	3
North Carolina	9	3	6	12	3	9	9	4	5	16	14	2
North Dakota	8	3	5	8	2	5	10	3	6	11	4	7
Ohio	8	5	3	10	6	4	—	—	—	11	9	3
Oklahoma	8	5	3	10	6	4	—	—	—	15	9	6
Oregon	8	3	5	—	—	—	12	4	8	17	6	11
Pennsylvania	10	5	5	9	4	5	—	—	—	—	—	—
Rhode Island	14	6	8	14	5	8	17	7	10	20	12	8
South Carolina	—	—	—	10	6	4	10	6	4	13	7	6
Tennessee	—	—	—	10	5	5	11	4	7	13	5	8
Texas	12	6	6	14	7	7	17	9	8	20	10	11
Utah	—	—	—	9	4	5	11	6	5	14	6	8
Vermont	—	—	—	—	—	—	12	4	8	17	10	7

Virginia	9	5	4	12	5	7	13	7	6	15	10	5
Washington	—	—	—	—	—	—	13	6	7	—	—	—
West Virginia	9	5	4	10	6	4	13	8	4	15	11	3
Wisconsin	8	4	4	10	4	6	12	7	5	17	10	7
Wyoming	8	3	5	9	4	5	10	2	8	13	4	9
Other jurisdictions												
District of Columbia	6	5	1	11	10	2	13	10	4	15	9	6
DoDEA ¹	—	—	—	—	—	—	8	3	5	9	5	3

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

**Percentage of eighth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state:
Various years, 1990–2000**

State/jurisdiction	1990			1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	—	—	—	8	5	3	9	4	5	12	6	6
Alabama	9	5	4	10	5	5	13	7	6	14	5	9
Alaska	—	—	—	—	—	—	10	5	6	—	—	—
Arizona	7	3	3	6	4	2	9	5	4	11	7	4
Arkansas	10	7	3	11	6	5	11	7	4	12	8	4
California	7	3	4	8	4	4	8	5	4	10	6	5
Colorado	8	4	5	8	4	5	11	4	7	—	—	—
Connecticut	9	5	4	12	5	6	13	7	6	14	9	5
Delaware	9	4	5	9	4	5	12	8	4	—	—	—
Florida	8	5	4	9	5	4	12	7	5	—	—	—
Georgia	6	3	3	7	4	3	9	6	3	10	7	3
Hawaii	7	3	3	9	3	5	9	4	5	15	6	9
Idaho	6	2	4	7	3	4	—	—	—	10	5	6
Illinois	8	4	4	—	—	—	—	—	—	11	6	5
Indiana	7	5	2	8	4	4	12	5	6	11	7	4
Iowa	9	4	6	10	4	6	12	5	7	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	10	5	5
Kentucky	7	5	3	9	5	4	9	4	5	13	9	4
Louisiana	6	4	2	7	4	3	9	6	3	13	6	7
Maine	—	—	—	11	4	6	11	5	6	14	9	5
Maryland	9	4	5	9	4	5	11	6	5	12	10	3
Massachusetts	—	—	—	14	6	8	15	7	9	16	10	6
Michigan	8	4	4	9	6	3	8	5	3	10	6	4
Minnesota	8	3	6	7	3	4	10	3	7	13	4	8
Mississippi	—	—	—	10	7	3	11	7	4	10	7	3
Missouri	—	—	—	11	4	6	11	6	4	14	8	6
Montana	6	2	4	—	—	—	9	3	6	11	5	5
Nebraska	8	3	5	9	4	6	11	4	7	11	3	8
Nevada	—	—	—	—	—	—	9	5	4	12	8	3
New Hampshire	12	4	7	12	5	7	14	4	11	—	—	—
New Jersey	10	5	4	12	6	6	10	5	5	—	—	—
New Mexico	8	6	3	10	4	6	13	5	9	17	10	7
New York	8	4	4	10	6	4	10	5	4	12	10	1
North Carolina	9	3	6	12	3	9	8	4	5	14	13	2
North Dakota	7	2	5	7	2	5	9	3	6	11	4	7
Ohio	8	5	3	9	6	4	—	—	—	11	9	3
Oklahoma	7	5	2	9	6	3	—	—	—	13	8	5
Oregon	7	2	5	—	—	—	10	3	7	13	4	9
Pennsylvania	10	5	5	8	4	4	—	—	—	—	—	—
Rhode Island	11	5	6	10	4	7	13	5	7	16	9	7

South Carolina	—	—	—	10	6	4	10	6	4	13	7	6
Tennessee	—	—	—	10	5	5	11	4	7	12	4	8
Texas	8	4	3	9	5	4	11	6	5	14	8	6
Utah	—	—	—	9	4	5	10	5	5	10	5	6
Vermont	—	—	—	—	—	—	12	4	8	16	9	7
Virginia	8	4	4	10	5	5	12	7	5	14	10	4
Washington	—	—	—	—	—	—	11	5	6	—	—	—
West Virginia	9	5	4	10	6	4	13	8	4	14	11	3
Wisconsin	7	4	3	9	4	5	11	7	4	16	10	6
Wyoming	8	3	4	9	4	5	10	2	8	12	4	8
Other jurisdictions												
District of Columbia	5	4	1	9	8	1	10	8	2	11	7	4
DoDEA ¹	—	—	—	—	—	—	7	2	5	6	4	3

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

Percentage of eighth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were not permitted, by state: Various years, 1990–2000

State/jurisdiction	1990			1992			1996			2000		
	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed	Identified	Excluded	Assessed
Nation (public)	—	—	—	2	2	1	3	1	2	4	2	3
Alabama	#	#	#	#	#	#	#	#	#	1	#	#
Alaska	—	—	—	—	—	—	5	1	4	—	—	—
Arizona	5	1	4	6	2	4	9	4	5	10	4	6
Arkansas	#	#	#	#	#	#	1	#	#	2	1	1
California	8	4	4	13	5	8	13	6	7	19	4	15
Colorado	1	1	#	1	1	1	2	1	1	—	—	—
Connecticut	2	1	1	3	1	1	2	2	1	2	1	1
Delaware	1	#	#	1	#	1	1	#	#	—	—	—
Florida	2	2	1	4	2	2	4	3	1	—	—	—
Georgia	#	#	#	1	#	#	2	1	#	1	1	#
Hawaii	3	1	2	5	2	3	4	1	2	6	2	4
Idaho	1	#	#	1	#	#	—	—	—	4	1	3
Illinois	1	1	#	—	—	—	—	—	—	5	2	3
Indiana	#	#	#	1	#	#	1	#	1	2	1	1
Iowa	#	#	#	1	#	1	#	#	#	—	—	—
Kansas	—	—	—	—	—	—	—	—	—	5	2	2
Kentucky	#	#	#	#	#	#	#	#	#	1	#	#
Louisiana	#	#	#	#	#	#	1	#	1	#	#	#
Maine	—	—	—	#	#	#	1	#	1	1	#	1
Maryland	1	1	1	1	1	1	1	1	#	2	1	#
Massachusetts	—	—	—	4	2	1	2	1	#	4	3	1
Michigan	#	#	#	1	#	#	1	1	1	1	1	#
Minnesota	1	#	1	#	#	#	1	#	1	2	1	1
Mississippi	—	—	—	#	#	#	#	#	#	#	#	#
Missouri	—	—	—	1	#	#	1	1	#	1	#	#
Montana	#	#	#	—	—	—	#	#	#	1	#	1
Nebraska	#	#	#	1	#	#	1	1	#	2	1	1
Nevada	—	—	—	—	—	—	7	3	4	5	3	2
New Hampshire	#	#	#	#	#	#	#	#	#	—	—	—
New Jersey	2	2	1	3	1	1	3	2	1	—	—	—
New Mexico	1	1	1	3	1	2	6	4	2	11	4	8
New York	4	2	2	3	3	1	5	3	2	6	4	2
North Carolina	#	#	#	#	#	#	1	1	#	3	3	#
North Dakota	1	#	1	1	#	1	#	#	#	1	#	#
Ohio	#	#	#	#	#	#	—	—	—	1	1	#

Oklahoma	1	#	#	1	#	1	—	—	—	2	1	1
Oregon	1	#	1	—	—	—	2	1	1	5	3	2
Pennsylvania	#	#	#	1	#	1	—	—	—	—	—	—
Rhode Island	4	2	2	4	2	2	4	2	2	4	3	1
South Carolina	—	—	—	#	#	#	#	#	#	#	#	#
Tennessee	—	—	—	#	#	#	#	#	#	1	1	#
Texas	5	2	3	6	2	4	7	3	4	8	3	5
Utah	—	—	—	1	1	#	2	1	#	4	2	2
Vermont	—	—	—	—	—	—	1	#	1	1	1	#
Virginia	1	1	#	2	1	2	1	1	1	2	1	1
Washington	—	—	—	—	—	—	2	1	1	—	—	—
West Virginia	#	#	#	#	#	#	#	#	#	#	#	#
Wisconsin	1	#	#	1	#	1	1	1	#	1	1	#
Wyoming	1	#	#	#	#	#	1	#	1	2	#	1
Other jurisdictions												
District of Columbia	1	1	#	3	2	1	4	3	2	4	3	2
DoDEA ¹	—	—	—	—	—	—	1	1	#	3	2	1

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: South Dakota did not participate in NAEP mathematics assessments from 1990 to 2000. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2000 Mathematics Assessments.

Percentage of fourth- and eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics when accommodations were permitted: Various years, 1996–2007

Student characteristics	1996	2000	2003	2005	2007
Grade 4					
SD and/or ELL					
Identified	15	18	21	21	21
Excluded	4	4	4	3	3
Assessed	11	14	17	18	19
Without accommodations	7	9	9	9	9
With accommodations	5	5	8	9	10
SD					
Identified	10	12	13	13	13
Excluded	3	3	3	2	2
Assessed	7	9	10	10	10
Without accommodations	4	5	4	3	3
With accommodations	4	4	6	7	7
ELL					
Identified	6	7	10	10	10
Excluded	1	1	1	1	1
Assessed	5	6	8	8	9
Without accommodations	3	4	6	6	6
With accommodations	2	1	2	2	3
Grade 8					
SD and/or ELL					
Identified	12	13	17	17	17
Excluded	3	4	3	3	4
Assessed	8	10	14	14	13
Without accommodations	6	7	7	6	6
With accommodations	3	3	6	8	7
SD					
Identified	9	10	13	12	12
Excluded	3	3	3	3	3
Assessed	6	7	10	10	8
Without accommodations	4	5	4	3	2
With accommodations	2	2	6	7	6

ELL

Identified	3	4	6	6	6
Excluded	1	1	1	1	1
Assessed	2	3	5	5	5
Without accommodations	2	2	4	4	4
With accommodations	#	1	1	1	2

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2007 Mathematics Assessments.

Percentage of fourth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed without accom- modations	Assessed with accom- modations		Identified	Excluded	Assessed without accom- modations	Assessed with accom- modations	
Nation (public)	19	4	15	10	5	22	4	18	10	8
Alabama	13	3	10	7	3	12	2	10	8	2
Alaska	—	—	—	—	—	31	1	30	20	10
Arizona	25	4	21	12	9	27	5	23	18	5
Arkansas	14	4	10	6	4	17	2	14	7	8
California	33	6	27	19	8	38	3	35	31	4
Colorado	—	—	—	—	—	20	2	17	7	11
Connecticut	14	5	10	5	4	16	4	12	5	8
Delaware	—	—	—	—	—	18	7	11	4	7
Florida	—	—	—	—	—	26	3	23	8	15
Georgia	11	3	8	4	4	16	2	14	6	7
Hawaii	19	9	11	8	3	17	3	14	5	8
Idaho	16	2	13	7	7	18	2	16	9	7
Illinois	17	3	14	5	9	23	4	18	7	11
Indiana	11	2	9	3	6	17	2	14	8	7
Iowa	15	2	12	5	7	18	3	15	4	11
Kansas	16	3	13	9	4	16	2	14	3	11
Kentucky	12	3	9	4	5	14	3	11	5	7
Louisiana	16	3	13	2	11	22	3	19	3	16
Maine	16	5	12	5	7	18	3	15	4	11
Maryland	12	2	10	4	6	16	4	12	6	6
Massachusetts	19	3	17	7	10	22	3	19	4	15
Michigan	11	3	8	3	4	15	4	11	5	6
Minnesota	16	2	14	7	7	18	3	16	8	7
Mississippi	6	3	3	1	2	10	5	5	4	1
Missouri	15	3	13	5	8	17	4	13	4	10
Montana	12	2	11	5	6	16	2	14	7	7
Nebraska	18	3	15	10	4	20	3	17	9	9
Nevada	20	7	13	8	5	26	4	22	14	8
New Hampshire	—	—	—	—	—	20	3	17	5	12
New Jersey	—	—	—	—	—	18	2	16	1	14
New Mexico	31	6	26	16	10	40	4	36	22	15
New York	16	5	11	2	9	19	5	14	2	11
North Carolina	16	5	11	3	8	21	4	17	5	12
North Dakota	12	1	11	7	4	18	2	16	8	7
Ohio	12	5	7	2	5	13	4	9	2	7
Oklahoma	20	5	15	11	5	22	4	18	10	8
Oregon	18	3	16	8	8	27	4	23	11	11
Pennsylvania	—	—	—	—	—	15	3	12	3	9
Rhode Island	23	3	20	10	10	27	3	24	9	15
South Carolina	17	5	12	7	5	18	6	12	7	4
South Dakota	—	—	—	—	—	18	1	16	9	7
Tennessee	11	3	9	7	1	14	3	11	7	5
Texas	25	7	18	12	6	27	7	20	14	6

Utah	14	3	11	7	4	21	3	19	11	7
Vermont	15	3	13	4	9	18	4	14	4	10
Virginia	16	4	12	5	7	19	6	13	5	8
Washington	—	—	—	—	—	19	3	16	8	8
West Virginia	13	3	11	3	8	15	3	12	3	9
Wisconsin	19	5	14	7	8	20	4	16	4	12
Wyoming	15	2	13	8	6	18	1	17	6	11
Other jurisdictions										
District of Columbia	19	5	14	7	7	18	4	14	4	10
DoDEA ¹	11	3	8	4	4	14	1	13	6	7

See notes at end of table.

Percentage of fourth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	23	3	20	10	10	23	3	20	10	10
Alabama	13	1	12	9	3	13	2	12	8	4
Alaska	32	2	30	15	15	30	2	28	13	15
Arizona	29	4	25	17	8	25	3	22	14	7
Arkansas	16	3	13	5	8	18	3	15	4	11
California	39	4	35	31	5	40	2	38	33	5
Colorado	22	3	19	5	14	25	2	24	9	15
Connecticut	16	2	14	4	10	18	1	17	4	13
Delaware	20	8	12	5	7	20	5	15	5	10
Florida	25	3	21	5	17	22	3	18	2	16
Georgia	16	2	14	6	8	15	2	13	4	9
Hawaii	18	3	16	6	9	19	1	18	7	11
Idaho	18	1	17	9	8	18	2	16	8	8
Illinois	22	3	20	9	10	23	5	18	8	10
Indiana	18	2	16	5	11	22	3	19	7	12
Iowa	18	2	16	4	12	17	1	16	4	12
Kansas	19	3	16	6	10	20	3	17	7	10
Kentucky	15	3	13	3	9	17	3	14	6	8
Louisiana	24	4	20	3	18	19	2	16	3	13
Maine	20	4	16	5	12	19	3	16	4	12
Maryland	17	4	13	5	9	16	4	12	4	9
Massachusetts	24	4	19	6	13	23	5	18	6	12
Michigan	17	4	13	4	9	15	3	12	5	7
Minnesota	19	2	17	9	9	21	2	18	8	10
Mississippi	11	2	9	5	4	11	1	10	5	6
Missouri	18	2	16	6	10	16	4	13	5	8
Montana	14	2	12	4	8	16	2	14	5	9
Nebraska	23	2	21	9	12	23	3	20	10	10
Nevada	26	3	23	13	10	32	3	29	16	13
New Hampshire	22	2	20	5	14	21	2	18	4	14
New Jersey	18	3	15	4	11	18	2	16	2	14
New Mexico	36	3	33	15	18	32	4	29	14	15
New York	20	4	17	2	14	22	2	20	2	17
North Carolina	21	2	18	4	14	21	2	19	5	14
North Dakota	17	3	14	6	8	17	4	13	5	9
Ohio	13	3	9	2	8	17	5	12	3	9
Oklahoma	21	4	17	7	10	19	5	14	7	7
Oregon	27	4	23	11	11	26	3	23	9	14
Pennsylvania	18	3	15	4	11	18	2	16	5	11
Rhode Island	26	3	23	8	15	25	2	23	7	16
South Carolina	16	4	12	7	5	17	2	15	7	8

South Dakota	19	2	17	9	8	19	1	17	9	8
Tennessee	13	3	10	4	6	16	6	10	5	5
Texas	27	6	21	13	8	26	5	21	12	9
Utah	23	2	20	11	9	22	2	20	11	9
Vermont	18	3	15	5	10	19	2	16	4	12
Virginia	22	5	17	5	12	22	5	17	7	10
Washington	21	3	18	8	10	22	3	19	8	11
West Virginia	20	2	17	9	8	18	1	17	8	8
Wisconsin	19	2	17	5	12	21	3	18	5	13
Wyoming	19	2	17	6	11	18	2	16	6	10
Other jurisdictions										
District of Columbia	20	6	14	4	10	20	6	14	2	13
DoDEA ¹	17	2	15	6	8	17	2	15	6	9

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of fourth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	13	3	9	5	4	14	3	11	4	7
Alabama	13	3	9	7	3	11	2	10	7	2
Alaska	—	—	—	—	—	16	1	15	6	9
Arizona	11	3	8	4	4	12	3	9	5	3
Arkansas	12	4	8	5	4	14	1	12	5	8
California	8	3	5	4	1	10	2	8	6	2
Colorado	—	—	—	—	—	12	2	11	3	7
Connecticut	11	3	8	4	4	13	3	10	3	6
Delaware	—	—	—	—	—	16	6	10	3	7
Florida	—	—	—	—	—	18	2	16	4	12
Georgia	9	3	7	3	4	12	2	11	4	7
Hawaii	13	6	7	5	2	11	2	10	3	6
Idaho	12	1	11	5	6	12	1	11	4	7
Illinois	11	2	9	3	6	15	3	13	4	9
Indiana	10	2	8	3	5	14	2	12	6	6
Iowa	13	1	11	4	7	15	2	13	3	10
Kansas	12	3	9	5	4	14	1	12	2	10
Kentucky	11	3	8	3	5	13	3	11	4	7
Louisiana	15	3	13	2	11	21	3	18	3	16
Maine	15	4	11	4	7	18	3	14	4	10
Maryland	11	2	9	4	5	13	3	10	4	6
Massachusetts	14	1	14	5	9	18	2	16	2	14
Michigan	10	3	7	3	4	11	3	7	2	5
Minnesota	12	2	10	5	5	14	2	11	5	6
Mississippi	6	3	3	1	2	10	5	5	3	1
Missouri	14	2	12	5	7	15	3	12	3	9
Montana	12	2	10	5	6	14	2	12	5	7
Nebraska	15	2	13	9	4	16	2	14	6	8
Nevada	10	3	7	3	4	13	3	10	5	5
New Hampshire	—	—	—	—	—	18	3	16	4	11
New Jersey	—	—	—	—	—	14	2	13	1	12
New Mexico	15	5	10	5	5	17	2	15	7	9
New York	11	2	8	#	8	13	3	10	1	10
North Carolina	14	4	10	3	7	17	4	14	3	10

North Dakota	11	1	9	5	4	15	2	14	6	7
Ohio	12	4	7	2	5	12	4	8	2	7
Oklahoma	16	4	12	7	4	17	3	14	6	8
Oregon	14	2	12	6	5	17	4	14	7	7
Pennsylvania	—	—	—	—	—	13	2	11	2	9
Rhode Island	16	2	14	6	8	20	2	18	5	13
South Carolina	17	5	12	7	5	17	6	11	6	4
South Dakota	—	—	—	—	—	15	1	13	7	6
Tennessee	10	2	8	7	1	13	2	11	6	5
Texas	15	6	9	6	3	15	7	8	5	3
Utah	9	3	6	4	2	12	2	10	5	5
Vermont	15	3	12	4	8	17	4	13	4	10
Virginia	13	3	10	4	6	13	4	9	3	6
Washington	—	—	—	—	—	14	2	12	5	7
West Virginia	13	3	11	3	8	15	3	12	3	9
Wisconsin	15	4	10	5	6	15	3	12	2	10
Wyoming	14	2	12	6	6	15	1	14	3	11
Other jurisdictions										
District of Columbia	13	3	10	5	5	13	4	10	2	7
DoDEA ¹	8	2	6	3	4	10	1	9	2	6

See notes at end of table.

Percentage of fourth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	14	3	11	4	8	14	3	11	3	8
Alabama	11	1	10	7	3	11	1	10	6	4
Alaska	15	1	14	4	10	16	1	15	4	10
Arizona	11	3	9	3	5	11	2	9	4	5
Arkansas	13	2	11	3	8	12	2	9	2	7
California	10	2	8	4	3	10	2	8	4	4
Colorado	12	2	10	2	8	12	2	11	2	9
Connecticut	13	2	11	3	8	13	1	11	2	9
Delaware	16	7	9	2	7	17	5	12	3	9
Florida	18	2	16	3	12	15	2	13	1	12
Georgia	14	2	12	5	7	12	2	10	3	7
Hawaii	11	2	10	3	7	11	1	10	2	8
Idaho	11	1	10	3	7	11	1	9	3	6
Illinois	14	2	12	4	8	15	3	11	4	8
Indiana	15	1	14	4	10	17	3	14	6	9
Iowa	14	2	13	2	11	13	1	12	2	10
Kansas	14	2	11	3	8	13	3	10	3	7
Kentucky	14	2	12	3	9	15	2	13	5	7
Louisiana	24	4	20	3	17	18	2	15	3	13
Maine	19	3	16	4	12	18	3	15	3	11
Maryland	13	3	10	3	7	12	4	9	3	6
Massachusetts	18	3	15	3	12	18	5	13	3	11
Michigan	14	4	11	3	7	13	3	10	4	7
Minnesota	13	2	11	5	6	13	2	12	4	7
Mississippi	11	2	8	5	4	10	1	9	4	6
Missouri	16	2	14	5	9	15	3	11	4	7
Montana	12	2	10	2	7	13	2	10	2	8
Nebraska	18	2	16	6	10	17	2	14	5	9
Nevada	12	3	10	3	6	13	2	11	5	6
New Hampshire	20	2	18	4	14	19	2	16	3	13
New Jersey	15	2	13	3	10	14	2	12	1	11

New Mexico	14	2	13	3	10	13	3	10	3	7
New York	15	3	12	1	11	15	1	13	1	12
North Carolina	15	2	13	3	10	15	2	13	3	10
North Dakota	16	2	13	5	8	15	4	11	3	8
Ohio	12	3	9	2	7	15	4	11	2	8
Oklahoma	16	4	12	4	9	14	5	10	3	6
Oregon	15	3	11	5	7	15	2	13	5	8
Pennsylvania	16	2	13	3	10	17	2	14	4	10
Rhode Island	20	2	18	6	12	19	2	17	5	12
South Carolina	14	4	10	6	5	13	2	12	5	6
South Dakota	16	1	14	7	7	15	1	14	7	7
Tennessee	11	3	8	3	6	14	6	8	4	4
Texas	14	5	8	4	4	13	5	8	3	5
Utah	12	2	11	4	6	12	2	10	4	6
Vermont	16	3	13	4	9	17	2	14	3	11
Virginia	16	4	11	3	8	15	4	11	4	7
Washington	13	2	11	4	7	15	2	13	5	8
West Virginia	19	2	17	9	8	17	1	16	8	8
Wisconsin	14	2	12	2	10	15	2	12	3	9
Wyoming	15	1	14	3	11	15	2	13	4	9
Other jurisdictions										
District of Columbia	16	5	11	2	8	14	5	9	1	8
DoDEA ¹	10	1	9	2	7	11	1	10	3	7

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of fourth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	7	1	6	5	1	11	1	9	7	2
Alabama	#	#	#	#	#	1	#	1	1	#
Alaska	—	—	—	—	—	18	#	18	15	3
Arizona	16	3	13	8	5	19	2	17	15	2
Arkansas	1	#	1	1	#	4	1	3	2	#
California	27	3	24	16	7	33	2	30	27	3
Colorado	—	—	—	—	—	9	1	9	4	4
Connecticut	3	1	2	1	1	4	1	3	1	2
Delaware	—	—	—	—	—	3	1	2	1	1
Florida	—	—	—	—	—	11	2	9	5	4
Georgia	2	1	1	1	#	4	1	4	3	1
Hawaii	7	3	4	4	#	7	2	5	3	2
Idaho	5	2	4	3	1	7	1	6	5	2
Illinois	7	2	5	2	3	9	2	7	4	3
Indiana	1	1	1	#	1	3	#	2	2	1
Iowa	2	1	1	1	#	4	1	3	2	1
Kansas	5	#	5	4	1	3	#	3	1	1
Kentucky	1	#	#	#	#	2	1	1	1	#
Louisiana	1	#	#	#	#	2	#	2	#	#
Maine	1	#	1	1	#	1	1	1	1	1
Maryland	2	1	1	1	#	4	2	2	2	1
Massachusetts	6	2	4	2	2	5	1	4	2	2
Michigan	1	1	#	#	#	5	1	4	3	1

Minnesota	5	1	4	2	3	6	1	5	3	2
Mississippi	#	#	#	#	#	1	1	#	#	#
Missouri	1	1	1	1	#	2	1	2	#	1
Montana	#	#	#	#	#	4	#	4	3	1
Nebraska	3	1	2	2	#	5	1	4	3	1
Nevada	11	4	7	6	1	17	2	14	11	4
New Hampshire	—	—	—	—	—	3	1	2	1	1
New Jersey	—	—	—	—	—	4	1	3	1	3
New Mexico	20	2	18	12	6	29	2	27	18	9
New York	6	3	3	1	2	8	3	4	2	3
North Carolina	3	1	2	1	1	5	1	4	2	2
North Dakota	1	#	1	1	#	4	#	4	3	1
Ohio	#	#	#	#	#	2	1	1	#	1
Oklahoma	5	1	5	3	1	7	1	6	5	1
Oregon	6	1	4	2	2	12	1	11	6	5
Pennsylvania	—	—	—	—	—	3	1	2	1	1
Rhode Island	7	1	6	4	2	10	2	7	4	3
South Carolina	1	1	#	#	#	2	#	2	1	#
South Dakota	—	—	—	—	—	4	#	4	2	2
Tennessee	1	1	1	1	#	1	#	1	1	#
Texas	13	2	11	8	3	16	2	14	10	4
Utah	6	1	5	3	2	12	1	10	8	3
Vermont	#	#	#	#	#	2	#	2	1	1
Virginia	4	2	2	1	1	8	2	6	2	3
Washington	—	—	—	—	—	7	1	6	4	2
West Virginia	#	#	#	#	#	#	#	#	#	#
Wisconsin	5	1	4	2	3	7	1	6	2	3
Wyoming	2	#	2	2	#	4	#	4	3	1
Other jurisdictions										
District of Columbia	6	2	4	2	2	7	1	5	2	3
DoDEA ¹	3	1	2	2	#	6	1	5	4	2

See notes at end of table.

Percentage of fourth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	10	1	9	7	3	11	1	10	7	3
Alabama	2	#	2	1	#	2	#	2	2	#
Alaska	19	1	19	11	7	16	1	15	9	6
Arizona	20	2	18	14	5	16	2	14	11	3
Arkansas	4	2	3	2	1	7	1	6	2	5
California	33	3	30	28	2	34	1	33	30	3
Colorado	11	1	11	4	7	15	#	14	7	7
Connecticut	5	1	4	2	2	7	#	7	2	5
Delaware	5	1	3	2	1	5	1	4	2	2
Florida	8	1	6	1	5	8	2	7	1	5
Georgia	3	1	2	1	1	3	#	3	1	2
Hawaii	8	1	7	4	3	10	1	9	5	4
Idaho	8	1	8	6	2	8	#	8	5	2
Illinois	9	1	9	6	3	9	1	8	4	3
Indiana	4	1	3	1	2	5	#	5	2	3
Iowa	4	#	4	2	2	5	#	5	2	3
Kansas	6	1	5	3	3	8	#	8	4	4
Kentucky	1	#	1	#	1	2	#	2	1	1
Louisiana	1	#	1	#	#	1	#	1	1	1
Maine	1	#	1	1	#	2	#	2	1	1

Maryland	4	1	3	1	2	4	1	4	1	3
Massachusetts	7	1	6	3	2	6	1	5	4	2
Michigan	3	1	3	1	1	2	#	2	1	1
Minnesota	7	1	7	4	3	8	1	7	4	3
Mississippi	1	#	#	#	#	1	#	1	1	#
Missouri	3	#	2	1	1	2	#	2	1	1
Montana	3	#	3	2	1	4	#	4	2	2
Nebraska	7	1	7	4	3	8	1	7	5	2
Nevada	17	1	15	10	5	22	2	21	11	9
New Hampshire	3	#	2	2	1	3	#	2	1	1
New Jersey	3	1	3	1	1	4	#	3	#	3
New Mexico	25	1	24	13	11	23	2	21	12	9
New York	6	1	5	1	4	9	1	8	1	7
North Carolina	6	1	6	2	4	7	1	7	2	4
North Dakota	2	#	1	1	#	3	1	2	1	1
Ohio	1	#	1	#	#	3	1	2	1	1
Oklahoma	6	1	5	3	2	5	#	5	4	1
Oregon	14	1	12	7	5	13	1	12	5	7
Pennsylvania	2	#	2	1	1	2	#	2	1	1
Rhode Island	7	1	6	2	4	7	1	6	3	4
South Carolina	2	#	2	1	#	4	#	4	2	1
South Dakota	4	#	3	2	2	4	#	4	3	1
Tennessee	2	1	2	1	#	2	#	2	1	1
Texas	15	2	13	9	4	16	2	14	9	5
Utah	12	1	11	7	4	12	1	11	8	4
Vermont	2	#	2	1	1	3	#	2	1	1
Virginia	8	1	7	2	5	8	1	7	3	4
Washington	9	1	8	5	3	9	1	8	4	4
West Virginia	#	#	#	#	#	1	#	1	1	#
Wisconsin	6	1	6	2	3	7	1	6	2	4
Wyoming	5	#	4	3	1	4	#	4	2	1
Other jurisdictions										
District of Columbia	5	1	4	1	2	8	2	6	1	5
DoDEA ¹	8	1	7	4	2	7	1	5	3	2

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of eighth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	14	4	10	7	3	19	4	15	8	7
Alabama	14	6	8	7	1	14	2	11	9	3
Alaska	—	—	—	—	—	23	1	22	14	8
Arizona	19	3	16	11	4	24	4	20	15	6
Arkansas	14	2	11	8	4	17	2	15	7	8
California	27	4	22	17	5	27	3	25	22	3
Colorado	—	—	—	—	—	15	2	14	5	8
Connecticut	16	6	10	6	4	17	4	13	5	8
Delaware	—	—	—	—	—	18	9	9	3	6
Florida	—	—	—	—	—	19	3	16	5	11
Georgia	11	5	6	3	3	13	2	11	5	6
Hawaii	20	5	15	13	2	20	4	17	8	9

Idaho	14	2	12	8	4	15	1	14	9	5
Illinois	15	5	11	7	3	18	4	14	4	9
Indiana	12	3	9	6	3	15	2	13	6	7
Iowa	—	—	—	—	—	17	2	15	6	9
Kansas	14	3	10	8	3	16	3	13	4	9
Kentucky	14	4	9	5	4	14	4	9	4	5
Louisiana	13	3	10	4	6	16	5	12	2	10
Maine	15	3	12	7	5	17	4	13	5	8
Maryland	13	3	11	7	4	16	4	12	7	5
Massachusetts	19	3	17	8	9	18	3	15	4	11
Michigan	11	4	7	5	2	15	5	10	4	6
Minnesota	15	2	13	11	3	16	2	14	8	6
Mississippi	11	5	5	4	1	9	5	4	3	2
Missouri	15	3	12	5	7	16	4	12	3	9
Montana	12	2	9	6	3	14	2	12	5	6
Nebraska	13	4	10	7	2	16	4	13	7	5
Nevada	16	4	12	8	5	18	2	16	9	6
New Hampshire	—	—	—	—	—	20	3	16	6	10
New Jersey	—	—	—	—	—	18	2	16	2	14
New Mexico	25	7	18	14	4	32	2	30	16	14
New York	16	4	12	5	7	20	5	15	3	12
North Carolina	16	5	11	4	7	18	4	15	3	12
North Dakota	11	2	9	8	2	16	1	14	7	7
Ohio	11	4	7	4	3	13	5	8	3	5
Oklahoma	15	4	11	8	3	19	2	17	10	7
Oregon	17	3	14	8	6	20	3	16	11	6
Pennsylvania	—	—	—	—	—	15	2	14	3	11
Rhode Island	20	3	16	12	4	23	4	20	7	13
South Carolina	13	4	9	7	2	15	7	8	5	4
South Dakota	—	—	—	—	—	13	2	11	6	6
Tennessee	13	2	10	9	1	16	3	13	12	1
Texas	20	8	12	10	2	20	7	13	11	2
Utah	14	3	11	8	3	16	3	14	9	5
Vermont	17	3	14	10	4	18	3	15	7	7
Virginia	15	6	9	5	4	17	7	10	4	6
Washington	—	—	—	—	—	16	2	14	10	5
West Virginia	15	3	12	4	8	16	3	14	5	9
Wisconsin	17	4	13	6	6	17	3	14	3	11
Wyoming	13	1	12	9	3	17	1	15	6	10
Other jurisdictions										
District of Columbia	15	6	9	3	6	20	6	14	5	9
DoDEA ¹	9	1	8	6	2	11	1	10	4	6

See notes at end of table.

Percentage of eighth-grade public school students identified as students with disabilities and/or English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	19	4	15	7	8	18	4	14	6	8
Alabama	14	1	13	10	3	14	3	11	9	2
Alaska	27	2	25	14	11	26	4	22	13	9
Arizona	23	5	18	12	6	19	3	15	9	6
Arkansas	15	3	12	5	7	15	2	13	3	10
California	28	2	25	21	4	28	2	26	21	5
Colorado	17	3	14	5	9	16	2	14	4	10
Connecticut	16	3	13	5	9	16	2	15	4	11
Delaware	18	11	7	4	3	16	7	10	3	7

Florida	21	3	18	4	13	19	3	15	2	13
Georgia	14	2	11	4	7	11	5	7	3	4
Hawaii	20	3	17	8	9	19	2	18	8	10
Idaho	17	2	15	8	7	15	2	13	7	7
Illinois	18	3	14	4	11	18	6	12	3	9
Indiana	17	4	13	3	10	18	6	13	3	9
Iowa	17	3	15	4	10	18	2	15	3	12
Kansas	17	4	13	4	9	16	4	12	5	8
Kentucky	12	3	9	2	6	14	7	8	2	6
Louisiana	15	4	11	1	10	13	3	10	1	9
Maine	19	5	14	5	9	18	5	13	4	9
Maryland	13	4	9	4	4	13	7	6	2	4
Massachusetts	20	6	13	4	10	20	9	11	3	7
Michigan	16	4	12	4	8	15	5	11	3	8
Minnesota	18	2	15	8	7	16	2	14	6	8
Mississippi	10	3	7	3	3	11	2	9	2	7
Missouri	15	4	11	3	8	15	5	10	3	7
Montana	16	2	14	5	9	17	3	14	4	9
Nebraska	16	1	14	6	9	15	3	13	5	8
Nevada	19	2	17	10	7	20	4	17	9	8
New Hampshire	19	2	17	6	11	21	3	17	6	12
New Jersey	18	4	15	2	12	18	3	15	2	12
New Mexico	30	3	26	13	13	26	3	23	14	9
New York	19	4	15	2	13	18	3	14	1	14
North Carolina	17	3	15	3	12	17	2	15	3	12
North Dakota	17	4	13	4	8	16	6	10	3	7
Ohio	14	6	9	2	7	16	7	9	2	7
Oklahoma	20	4	15	7	8	18	8	9	5	5
Oregon	19	3	16	9	8	19	3	16	8	8
Pennsylvania	16	3	13	3	10	17	4	13	3	10
Rhode Island	21	3	18	7	11	20	3	17	5	12
South Carolina	15	6	9	5	4	15	5	10	4	5
South Dakota	14	2	11	4	7	12	2	9	3	6
Tennessee	15	5	11	5	5	13	6	7	4	3
Texas	19	6	13	9	4	17	6	12	7	5
Utah	17	2	14	6	8	18	3	15	8	7
Vermont	19	4	15	7	9	21	4	16	5	11
Virginia	18	5	13	5	8	17	7	11	4	7
Washington	16	2	13	5	8	16	4	13	5	8
West Virginia	17	3	14	6	8	17	2	15	6	10
Wisconsin	18	4	13	3	10	18	5	13	2	11
Wyoming	17	2	15	5	10	15	2	13	4	9
Other jurisdictions										
District of Columbia	19	6	14	2	11	21	10	11	3	8
DoDEA ¹	13	2	11	4	7	12	2	10	3	7

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of eighth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	11	3	7	5	2	14	3	11	5	6
Alabama	14	6	7	7	1	13	2	11	8	3

Alaska	—	—	—	—	—	15	1	14	6	8
Arizona	11	2	9	6	2	11	3	9	4	4
Arkansas	13	2	11	7	4	15	1	13	6	7
California	10	3	7	5	3	11	1	9	7	2
Colorado	—	—	—	—	—	12	1	10	4	7
Connecticut	14	5	9	6	3	14	3	11	4	7
Delaware	—	—	—	—	—	16	8	8	3	5
Florida	—	—	—	—	—	14	2	12	3	9
Georgia	9	4	6	3	3	11	2	10	4	6
Hawaii	15	4	11	10	2	16	3	13	5	8
Idaho	11	2	9	6	3	10	1	10	6	4
Illinois	11	3	8	5	3	15	4	12	3	8
Indiana	11	3	8	5	3	14	2	11	5	6
Iowa	—	—	—	—	—	16	2	14	5	9
Kansas	12	3	9	6	3	13	2	11	3	8
Kentucky	12	4	8	4	4	13	4	9	4	5
Louisiana	12	2	10	4	6	16	4	11	2	9
Maine	14	3	12	7	4	16	4	12	5	7
Maryland	12	2	10	7	4	14	3	10	6	5
Massachusetts	16	2	15	7	8	16	2	14	4	10
Michigan	10	4	7	5	2	13	4	8	3	5
Minnesota	12	1	11	9	2	13	2	11	6	5
Mississippi	10	5	5	4	1	9	5	4	2	2
Missouri	14	3	12	5	7	15	4	12	3	9
Montana	12	2	9	6	3	12	2	10	5	6
Nebraska	11	3	8	6	2	14	3	11	6	5
Nevada	12	3	9	5	4	12	2	10	5	5
New Hampshire	—	—	—	—	—	19	3	15	6	9
New Jersey	—	—	—	—	—	15	1	14	2	12
New Mexico	17	7	10	8	3	20	2	18	8	10
New York	12	3	9	2	6	16	4	12	2	10
North Carolina	14	4	10	3	7	16	3	12	2	10
North Dakota	11	2	9	7	2	14	1	13	6	7
Ohio	11	4	7	4	3	13	5	8	3	5
Oklahoma	13	4	9	7	3	16	2	14	8	6
Oregon	13	2	11	6	5	14	3	12	7	4
Pennsylvania	—	—	—	—	—	14	1	13	2	10
Rhode Island	16	3	14	10	4	20	3	17	5	12
South Carolina	13	4	9	7	2	15	7	8	4	4
South Dakota	—	—	—	—	—	11	2	9	4	5
Tennessee	11	2	9	9	1	14	3	12	11	1
Texas	14	7	7	5	1	15	6	9	8	2
Utah	10	2	8	6	2	11	2	9	5	4
Vermont	16	3	13	9	4	17	3	15	7	7
Virginia	13	5	7	4	4	15	6	9	3	6
Washington	—	—	—	—	—	13	2	11	7	4
West Virginia	14	3	12	4	8	16	3	13	5	9
Wisconsin	15	4	12	6	6	15	3	13	2	10
Wyoming	12	1	11	8	3	15	1	14	4	9
Other jurisdictions										
District of Columbia	11	5	7	2	4	16	5	11	3	8
DoDEA ¹	6	1	5	4	2	8	1	7	1	5

See notes at end of table.

Percentage of eighth-grade public school students identified as students with disabilities, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accom-	Assessed with accom-	Identified	Excluded	Assessed	Assessed without accom-	Assessed with accom-

Nation (public)	modations					modations				
	13	3	10	3	7	13	4	9	2	6
Alabama	13	1	12	9	3	12	3	9	7	2
Alaska	14	2	12	3	10	12	4	8	3	6
Arizona	10	3	7	3	4	11	3	8	3	5
Arkansas	14	3	11	5	7	12	2	10	2	8
California	9	2	8	4	3	9	2	7	4	3
Colorado	10	2	9	2	6	10	2	9	1	7
Connecticut	13	2	11	4	7	13	1	12	3	9
Delaware	15	10	5	2	3	14	6	8	2	6
Florida	16	2	14	3	11	13	2	11	1	10
Georgia	12	2	9	3	6	9	5	5	2	3
Hawaii	14	2	12	5	7	13	1	12	4	7
Idaho	12	2	10	4	6	10	1	8	3	5
Illinois	15	3	13	2	10	14	5	9	2	8
Indiana	15	4	11	2	9	15	5	10	2	8
Iowa	15	2	13	3	10	15	2	13	2	11
Kansas	14	3	10	2	8	12	4	9	2	7
Kentucky	11	3	8	2	6	13	6	7	2	5
Louisiana	14	4	10	1	9	12	3	9	1	8
Maine	18	4	14	5	8	17	5	12	3	9
Maryland	11	4	7	3	4	11	7	4	1	3
Massachusetts	17	6	12	2	9	17	9	8	2	6
Michigan	14	4	10	2	7	14	4	9	2	8
Minnesota	12	2	10	4	6	12	2	10	3	7
Mississippi	9	3	6	3	3	11	2	8	2	6
Missouri	14	4	10	2	8	13	5	9	2	6
Montana	13	2	11	3	8	13	3	10	2	8
Nebraska	13	1	12	4	8	13	2	11	3	7
Nevada	11	2	9	4	5	12	3	9	4	5
New Hampshire	18	2	16	6	10	19	3	16	5	12
New Jersey	16	3	14	2	12	14	3	12	1	11
New Mexico	16	2	14	4	9	12	2	10	4	7
New York	15	3	12	1	11	14	3	11	1	11
North Carolina	14	2	12	2	11	13	2	11	1	10
North Dakota	16	4	12	4	8	14	6	8	2	6
Ohio	14	5	8	2	7	15	7	8	1	7
Oklahoma	16	4	12	5	7	14	8	6	2	4
Oregon	13	2	10	4	6	12	3	9	4	5
Pennsylvania	15	3	12	3	10	15	4	12	3	9
Rhode Island	17	3	15	6	9	17	2	15	3	12
South Carolina	14	6	8	4	4	13	5	8	3	5
South Dakota	12	2	10	3	6	11	2	9	2	6
Tennessee	14	5	10	5	5	12	6	5	3	3
Texas	13	5	8	5	3	11	5	6	3	3
Utah	11	2	9	3	6	10	2	8	2	6
Vermont	18	4	14	6	8	19	4	15	5	10
Virginia	15	4	10	3	7	14	6	8	2	6
Washington	11	2	9	3	7	11	3	8	2	6
West Virginia	17	3	14	6	8	17	2	15	5	10
Wisconsin	14	3	11	2	9	14	4	10	2	9
Wyoming	14	2	13	3	10	13	2	11	3	9
Other jurisdictions										
District of Columbia	17	5	12	2	10	17	9	8	2	6
DoDEA ¹	9	1	8	2	5	7	1	7	1	6

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of eighth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007

State/jurisdiction	2000					2003				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	4	1	3	3	1	6	1	5	4	1
Alabama	1	#	#	#	#	1	#	1	1	#
Alaska	—	—	—	—	—	11	#	11	10	1
Arizona	10	1	8	6	2	16	2	14	12	2
Arkansas	1	#	#	#	#	3	1	2	1	1
California	19	2	17	13	4	20	2	19	17	1
Colorado	—	—	—	—	—	5	1	4	2	2
Connecticut	2	2	1	#	1	4	1	3	1	1
Delaware	—	—	—	—	—	2	1	1	1	1
Florida	—	—	—	—	—	7	1	5	3	3
Georgia	2	1	#	#	#	2	1	2	1	1
Hawaii	6	1	4	4	#	6	1	5	3	2
Idaho	4	1	4	3	1	6	#	5	4	1
Illinois	5	2	3	3	#	4	1	3	1	2
Indiana	1	#	1	1	#	3	#	2	1	1
Iowa	—	—	—	—	—	2	#	2	1	1
Kansas	1	#	1	1	#	4	1	3	1	2
Kentucky	1	1	1	1	#	1	1	1	1	#
Louisiana	1	#	1	#	#	1	1	1	#	#
Maine	#	#	#	#	#	1	#	1	#	#
Maryland	2	1	1	1	#	3	1	2	2	#
Massachusetts	4	2	2	1	1	3	1	2	1	1
Michigan	#	#	#	#	#	3	1	2	1	1
Minnesota	3	1	3	2	#	4	1	3	2	1
Mississippi	#	#	#	#	#	1	#	#	#	#
Missouri	#	#	#	#	#	1	#	1	#	1
Montana	#	#	#	#	#	3	#	2	1	1
Nebraska	2	1	1	1	#	3	1	2	1	#
Nevada	5	1	4	3	#	7	1	6	5	2
New Hampshire	—	—	—	—	—	1	#	1	#	1
New Jersey	—	—	—	—	—	3	1	2	#	2
New Mexico	11	2	9	7	2	20	1	19	11	7
New York	6	2	4	3	1	6	2	4	1	3
North Carolina	2	1	1	1	#	4	1	3	1	2
North Dakota	1	#	1	1	#	2	#	2	1	1
Ohio	2	1	1	#	#	1	#	1	#	#
Oklahoma	2	#	1	1	#	5	1	5	3	1
Oregon	5	1	4	3	1	7	1	6	4	2
Pennsylvania	—	—	—	—	—	2	#	2	1	1
Rhode Island	4	1	3	2	1	5	2	4	2	2
South Carolina	1	#	#	#	#	1	#	1	1	#
South Dakota	—	—	—	—	—	3	#	3	2	1
Tennessee	1	1	1	1	#	3	1	2	2	#
Texas	8	2	6	5	1	8	2	6	5	1
Utah	4	#	3	3	1	7	1	6	5	2
Vermont	1	1	1	#	#	1	#	1	1	#
Virginia	3	1	2	1	1	4	2	2	1	1
Washington	—	—	—	—	—	5	1	4	3	1
West Virginia	#	#	#	#	#	1	#	#	#	#
Wisconsin	2	1	1	1	1	3	1	2	1	1
Wyoming	2	#	2	2	#	3	#	3	2	1
Other jurisdictions										
District of Columbia	4	2	2	1	2	5	1	4	2	2
DoDEA ¹	3	1	2	2	#	5	1	4	2	1

See notes at end of table.

Percentage of eighth-grade public school students identified as English language learners, and percentage excluded and assessed in NAEP mathematics when accommodations were permitted, by state: Various years, 2000–2007—Continued

State/jurisdiction	2005					2007				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
Nation (public)	6	1	5	4	1	7	1	6	4	2
Alabama	1	#	1	1	#	2	#	2	2	#
Alaska	15	#	15	11	4	17	1	16	11	5
Arizona	14	2	12	10	2	10	1	9	7	2
Arkansas	1	1	1	#	#	3	#	3	1	2
California	21	1	20	18	2	22	1	21	19	2
Colorado	7	1	6	3	3	7	#	6	3	3
Connecticut	3	#	3	1	2	4	#	4	1	2
Delaware	4	1	2	2	1	3	1	2	1	1
Florida	6	1	4	1	3	6	1	5	1	4
Georgia	2	#	2	1	1	2	#	2	1	1
Hawaii	7	1	6	4	2	7	1	6	4	3
Idaho	6	1	6	4	2	6	#	5	4	2
Illinois	3	1	2	1	1	4	1	3	2	1
Indiana	2	#	2	1	1	4	#	3	2	1
Iowa	2	#	2	1	1	3	#	3	1	2
Kansas	4	1	3	2	1	4	#	4	3	1
Kentucky	1	#	1	#	1	2	#	1	#	1
Louisiana	1	#	1	#	1	1	#	1	1	1
Maine	1	#	1	#	1	2	#	1	1	#
Maryland	2	#	2	1	#	2	#	2	1	1
Massachusetts	3	1	2	1	1	3	1	3	1	1
Michigan	3	#	2	2	1	2	#	2	1	#
Minnesota	7	1	6	5	1	5	#	4	4	1
Mississippi	1	#	1	#	#	#	#	#	#	#
Missouri	1	#	1	#	1	2	#	2	1	1
Montana	5	#	4	2	2	5	#	4	3	2
Nebraska	3	#	3	2	1	3	1	2	1	1
Nevada	9	1	9	6	2	11	1	9	6	4
New Hampshire	1	#	1	#	1	2	#	2	1	1
New Jersey	2	1	1	#	1	4	1	3	1	2
New Mexico	17	2	15	9	6	17	2	15	11	4
New York	5	1	4	1	3	5	1	4	#	4
North Carolina	4	1	3	1	2	4	#	4	2	2
North Dakota	1	#	1	1	#	3	#	2	1	1
Ohio	1	#	1	#	#	1	#	1	#	#
Oklahoma	4	1	4	2	1	4	1	3	2	1
Oregon	8	1	7	5	3	9	1	8	5	3
Pennsylvania	1	#	1	#	#	2	1	1	#	1
Rhode Island	5	1	4	2	2	4	1	3	2	1
South Carolina	1	#	1	1	#	2	#	2	1	1
South Dakota	2	#	2	1	1	1	#	1	#	#
Tennessee	1	#	1	1	#	2	#	2	1	1
Texas	8	2	6	5	1	8	2	6	4	2
Utah	7	1	6	4	2	9	1	8	6	2
Vermont	1	#	1	#	#	2	#	1	1	1
Virginia	4	1	3	2	1	4	1	3	2	1
Washington	5	1	4	3	2	6	1	5	3	2
West Virginia	#	#	#	#	#	1	#	1	1	#
Wisconsin	4	1	3	1	1	5	1	3	1	2
Wyoming	4	#	4	3	1	3	#	3	1	1
Other jurisdictions										
District of Columbia	4	1	3	1	2	4	1	3	1	2
DoDEA ¹	4	1	4	2	1	5	1	3	2	1

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

¹ Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2000–2007 Mathematics Assessments.

Percentage of fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics, by SD/ELL category and urban district: 2003, 2005, and 2007

SD/ELL category and district	2003					2005				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
SD and/or ELL										
Nation (public)	22	4	18	10	8	23	3	20	10	10
Large central city (public)	31	5	25	17	9	32	4	28	17	11
Atlanta	9	1	8	4	4	11	1	9	3	6
Austin	—	—	—	—	—	37	10	27	12	14
Boston	33	5	28	11	17	33	6	27	11	15
Charlotte	21	4	17	5	12	22	3	19	7	12
Chicago	31	8	23	16	7	29	4	25	15	9
Cleveland	15	7	8	3	5	17	6	12	2	9
District of Columbia	18	4	14	4	10	20	6	14	4	10
Houston	45	8	37	19	18	46	7	38	17	21
Los Angeles	60	3	56	48	8	59	5	54	47	7
New York City	22	6	16	4	12	24	4	19	2	17
San Diego	41	2	38	34	4	43	4	39	33	6
SD										
Nation (public)	14	3	11	4	7	14	3	11	4	8
Large central city (public)	13	3	9	4	6	13	3	10	3	7
Atlanta	8	1	7	3	4	9	1	8	2	6
Austin	—	—	—	—	—	15	7	8	2	6
Boston	20	3	16	4	12	22	5	17	3	14
Charlotte	17	3	14	3	10	13	2	11	3	8
Chicago	15	5	10	4	6	13	4	10	3	7
Cleveland	12	5	6	2	5	13	5	8	1	8
District of Columbia	13	4	10	2	7	16	5	11	2	8
Houston	18	7	11	8	3	12	5	7	3	4
Los Angeles	11	2	9	5	4	11	3	8	3	5
New York City	12	1	12	1	10	14	2	11	1	11
San Diego	11	1	10	7	3	11	2	9	4	4
ELL										
Nation (public)	11	1	9	7	2	10	1	9	7	3
Large central city (public)	21	3	18	14	4	21	2	19	14	5
Atlanta	2	#	2	1	#	2	#	2	1	1
Austin	—	—	—	—	—	25	5	20	11	9
Boston	18	3	15	8	7	15	3	12	9	3
Charlotte	8	2	6	2	4	10	1	8	4	4
Chicago	20	5	15	13	2	18	2	16	12	4
Cleveland	4	1	2	1	1	4	1	3	2	2
District of Columbia	7	1	5	2	3	5	1	4	1	2
Houston	35	4	31	14	17	37	4	33	15	18
Los Angeles	56	2	53	47	6	54	4	50	45	5
New York City	13	6	7	3	4	12	3	9	1	8
San Diego	34	2	32	30	2	36	3	33	30	3

See notes at end of table.

Percentage of fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics, by SD/ELL category and urban district: 2003, 2005, and 2007—Continued

SD/ELL category and district	2007				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
SD and/or ELL					
Nation (public)	23	3	20	10	10
Large central city (public)	33	4	29	17	12
Atlanta	12	2	11	4	7
Austin	40	5	34	17	18
Boston	47	5	42	25	17
Charlotte	22	3	19	7	12
Chicago	32	5	26	17	10
Cleveland	23	13	10	1	8
District of Columbia	20	6	14	2	13
Houston	45	4	41	23	18
Los Angeles	53	1	51	44	8
New York City	29	2	27	2	25
San Diego	46	3	43	36	7
SD					
Nation (public)	14	3	11	3	8
Large central city (public)	13	3	10	3	7
Atlanta	10	2	8	4	5
Austin	13	4	9	2	7
Boston	22	4	18	3	15
Charlotte	12	2	10	2	8
Chicago	14	4	10	4	6
Cleveland	17	13	5	#	4
District of Columbia	14	5	9	1	8
Houston	10	3	7	2	4
Los Angeles	11	1	9	4	5
New York City	16	1	15	1	14
San Diego	12	2	9	4	5
ELL					
Nation (public)	11	1	10	7	3
Large central city (public)	22	1	21	14	6
Atlanta	3	#	2	#	2
Austin	29	2	27	15	12
Boston	31	2	28	22	6
Charlotte	11	2	10	5	5
Chicago	20	2	18	13	5
Cleveland	7	1	5	1	4
District of Columbia	8	2	6	1	5
Houston	38	2	36	21	15
Los Angeles	48	1	47	42	5
New York City	17	2	15	1	13
San Diego	40	1	38	34	4

— Not available. The district did not participate in 2003.

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. As of 2005, "large central city" includes nationally representative public schools located in large central cities (population of 250,000 or more) within a Metropolitan Statistical Area (MSA). Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003, 2005, and 2007 Trial Urban District Mathematics Assessments.

Percentage of eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics, by SD/ELL category and urban district: 2003, 2005, and 2007

SD/ELL category and district	2003					2005				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
SD and/or ELL										
Nation (public)	19	4	15	8	7	19	4	15	7	8
Large central city (public)	24	5	19	13	7	24	4	20	12	8
Atlanta	11	2	9	4	5	12	1	10	3	8
Austin	—	—	—	—	—	26	10	16	12	4
Boston	31	7	24	9	15	25	9	16	7	9
Charlotte	18	3	14	5	9	18	3	15	5	10
Chicago	22	7	15	8	7	21	3	18	5	12
Cleveland	21	9	12	2	9	20	9	12	3	9
District of Columbia	20	6	14	5	9	19	6	14	2	11
Houston	26	8	18	16	3	24	6	18	14	4
Los Angeles	37	2	35	29	6	39	3	36	30	6
New York City	24	5	19	6	14	20	2	18	2	16
San Diego	29	4	26	22	4	28	4	24	17	7
SD										
Nation (public)	14	3	11	5	6	13	3	10	3	7
Large central city (public)	14	3	11	5	5	13	3	10	3	6
Atlanta	10	1	9	4	5	11	1	9	3	7
Austin	—	—	—	—	—	14	8	6	5	2
Boston	24	4	20	7	13	18	7	11	3	8
Charlotte	14	3	12	4	8	12	2	10	2	8
Chicago	17	5	12	6	7	16	2	14	3	11
Cleveland	17	9	8	1	6	18	8	9	3	7
District of Columbia	16	5	11	3	8	17	5	12	2	10
Houston	16	7	10	9	#	11	4	7	5	2
Los Angeles	12	2	10	5	5	12	2	10	5	5
New York City	15	2	13	3	10	12	1	11	1	10
San Diego	11	1	10	7	3	11	3	8	4	4
ELL										
Nation (public)	6	1	5	4	1	6	1	5	4	1
Large central city (public)	13	2	11	9	3	13	2	12	9	3
Atlanta	2	1	1	1	#	1	#	1	#	1
Austin	—	—	—	—	—	14	4	10	8	2
Boston	13	5	8	4	4	10	4	6	5	1
Charlotte	7	1	6	3	3	7	1	6	4	2
Chicago	8	3	5	3	2	6	2	5	2	2
Cleveland	5	1	4	1	3	3	1	2	#	2
District of Columbia	5	1	4	2	2	4	1	3	1	2
Houston	16	5	11	9	2	15	3	12	10	3
Los Angeles	33	2	31	27	4	34	2	32	28	4
New York City	13	4	9	3	6	10	2	9	2	7
San Diego	23	3	20	18	2	21	3	18	14	4

See notes at end of table.

Percentage of eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL), and percentage excluded and assessed in NAEP mathematics, by SD/ELL category and urban district: 2003, 2005, and 2007—Continued

SD/ELL category and district	2007				
	Identified	Excluded	Assessed	Assessed without accom- modations	Assessed with accom- modations
SD and/or ELL					
Nation (public)	18	4	14	6	8
Large central city (public)	23	4	19	10	9
Atlanta	11	3	8	2	6
Austin	29	5	23	16	8
Boston	27	8	18	6	12

Charlotte	20	3	18	6	12
Chicago	23	6	17	5	12
Cleveland	24	13	11	2	9
District of Columbia	21	10	11	3	8
Houston	22	6	16	10	6
Los Angeles	33	2	31	25	6
New York City	22	2	20	1	19
San Diego	28	4	24	19	5
SD					
Nation (public)	13	4	9	2	6
Large central city (public)	13	4	9	3	6
Atlanta	11	3	7	2	5
Austin	16	4	12	7	5
Boston	19	7	12	3	9
Charlotte	13	2	11	2	10
Chicago	17	5	13	3	10
Cleveland	20	13	7	1	6
District of Columbia	17	9	8	2	6
Houston	13	5	8	4	4
Los Angeles	10	2	8	3	5
New York City	13	1	12	1	11
San Diego	11	4	7	3	4
ELL					
Nation (public)	7	1	6	4	2
Large central city (public)	13	1	11	7	4
Atlanta	1	#	1	#	1
Austin	16	2	13	10	3
Boston	9	2	7	4	3
Charlotte	9	1	7	4	3
Chicago	7	2	5	2	3
Cleveland	5	1	4	1	3
District of Columbia	4	1	3	1	2
Houston	12	2	10	7	2
Los Angeles	28	1	27	23	4
New York City	11	1	10	1	9
San Diego	21	2	19	17	3

— Not available. The district did not participate in 2003.

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. As of 2005, "large central city" includes nationally representative public schools located in large central cities (population of 250,000 or more) within a Metropolitan Statistical Area (MSA). Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003, 2005, and 2007 Trial Urban District Mathematics Assessments.

Investigating the Potential Effects of Exclusion Rates on Assessment Results

Variation in the rates of exclusion of students with disabilities (SD) and English language learners (ELL) introduces validity concerns for comparisons over time and between jurisdictions. The essential problem is the differential representativeness of samples, which could impact the comparability of cross-state comparisons within a given year and state trends across years. Because students with disabilities and English language learners tend to score below average on assessments, excluding such students may increase a jurisdiction's scores. Conversely, including more of these students might depress scores. In 2007, exclusion rates varied among jurisdictions. In addition, cases of both increases and decreases in exclusion rates occurred between 2000 and 2007, making comparisons over time within jurisdictions complex to interpret. Tables A-16 and A-19 on the preceding pages display the rates of exclusion in 2003, 2005, and 2007 in each jurisdiction for grade 4 and grade 8, respectively.

As shown in table A-16, of the 52 jurisdictions that participated in the mathematics assessment at grade 4 in 2007, 9 jurisdictions had exclusion rates of 5 percent or greater, while the majority had exclusion rates of 2 percent or less. Table A-19 displays the corresponding data for grade 8. Of the 52 jurisdictions in which mathematics was assessed at grade 8 in 2007, 17 jurisdictions had exclusion rates of 5 percent or higher, and 19 had exclusion rates of 2 percent or less.

One factor that contributed to the variability in exclusion rates across states is that the percentage of students who are *identified* as having disabilities or as English language learners varies across jurisdictions. Reasons for the variation include lack of standardized criteria for defining students as having specific disabilities or as ELL, and changes or differences in policy and practices regarding implementation of the Individuals with Disabilities Education Act (IDEA).

Types of Accommodations Permitted

Table A-24 displays the percentages of SD/ELL students assessed with the available accommodations. It should be noted that students assessed with accommodations typically received some combination of accommodations. The numbers and percentages presented in the table reflect only the primary accommodation provided. For example, students assessed in small groups (as compared with standard NAEP sessions of about 30 students) usually received extended time. Here, the primary accommodation coded would be small groups. In one-on-one administrations, students often received assistance in recording answers (e.g., use of a scribe or computer) and were afforded extra time. Extended time was considered the primary accommodation only when it was the sole accommodation provided.

Percentage of fourth- and eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) assessed in NAEP mathematics with accommodations, by SD/ELL category and type of primary accommodation: Various years, 1996–2007

SD/ELL category and type of accommodation	Grade 4					Grade 8				
	1996	2000	2003	2005	2007	1996	2000	2003	2005	2007
SD and/or ELL										
Bilingual book	1.4	0.8	0.8	0.5	0.5	0.4	0.4	0.3	0.2	0.2
Bilingual dictionary	#	#	#	#	0.2	#	#	0.1	0.1	0.4
Large-print book	#	#	0.1	#	#	#	#	#	#	#
Extended time	0.8	0.6	0.9	1.3	3.2	0.7	0.5	1.5	1.7	3.4
Read aloud	0.4	0.3	0.7	0.4	4.3	0.1	0.2	0.3	0.3	2.5
Small group	1.6	2.4	5.2	6.2	0.7	1.0	1.6	4.2	5.0	0.6
One-on-one	0.9	0.4	0.3	0.4	#	0.4	0.1	0.1	0.2	#
Scribe/computer	—	#	0.2	0.1	0.3	—	#	0.1	#	0.1
Breaks	—	—	—	#	#	—	—	—	#	#
Magnifying device	—	—	—	#	#	—	—	—	#	#
School staff administrators	—	—	—	0.2	#	—	—	—	0.1	#
Other	#	#	0.1	0.1	0.5	0.1	0.1	0.1	#	0.4
SD										
Bilingual book	#	#	0.1	#	#	#	#	#	#	#
Bilingual dictionary	#	#	#	#	#	#	#	#	#	#
Large-print book	#	#	0.1	#	#	#	#	#	#	#
Extended time	0.8	0.6	0.7	0.8	2.3	0.7	0.4	1.4	1.3	2.9
Read aloud	0.4	0.3	0.5	0.3	3.6	0.1	0.2	0.3	0.3	2.2
Small group	1.6	2.3	4.7	5.4	0.6	1.0	1.6	3.9	4.7	0.6
One-on-one	0.9	0.4	0.3	0.4	#	0.4	0.1	0.1	0.2	#
Scribe/computer	—	#	0.2	0.1	0.3	—	#	0.1	#	0.1
Breaks	—	—	—	#	#	—	—	—	#	#
Magnifying device	—	—	—	#	#	—	—	—	#	#
School staff administrators	—	—	—	0.2	#	—	—	—	0.1	#
Other	#	#	0.1	0.1	0.5	0.1	0.1	0.1	#	0.4
ELL										
Bilingual book	1.4	0.8	0.8	0.5	0.5	0.4	0.4	0.3	0.2	0.2
Bilingual dictionary	#	#	#	#	0.2	#	#	0.1	0.1	0.4
Large-print book	#	#	#	#	#	#	#	#	#	#
Extended time	0.1	0.1	0.3	0.5	1.1	#	0.1	0.3	0.4	0.6
Read aloud	#	#	0.2	0.1	0.9	0.1	#	#	0.1	0.3
Small group	0.2	0.3	0.9	1.2	0.2	#	0.1	0.5	0.6	0.1
One-on-one	0.1	#	#	#	#	#	#	#	#	#
Scribe/computer	—	#	#	#	#	—	#	#	#	#
Breaks	—	—	—	#	#	—	—	—	#	#
Magnifying device	—	—	—	#	#	—	—	—	#	#

School staff administrators	—	—	—	#	#	—	—	—	#	#
Other	#	#	#	#	0.1	#	#	#	#	0.1

— Not available.

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1996–2007 Mathematics Assessments.

Data Collection and Scoring

The NAEP 2007 mathematics assessment was conducted from January to March 2007 by contractors to the U.S. Department of Education. Trained field staff from Westat conducted the data collection. Materials from the 2007 assessment were shipped to Pearson, Inc., where the test booklets were scanned and the multiple-choice items were machine scored. Trained staff evaluated the responses to the constructed-response questions using scoring rubrics or guides prepared by Educational Testing Service (ETS). Each constructed-response question had a unique scoring guide that defined the criteria used to evaluate students' responses. The extended constructed-response questions were evaluated with five-level scoring guides. Some short constructed-response questions were rated according to three- or four-level guides that permitted partial credit. Other short constructed-response questions were scored as either correct or incorrect.

For the 2007 mathematics assessment, 3,751,000 student-constructed responses were scored. This number includes rescoring to monitor interrater reliability. The average percentage of exact agreement between raters of the same student responses for the 2007 national reliability sample was 96 percent at both the fourth and eighth grades.

Data Analysis and IRT Scaling

After the professional scoring, all information was transcribed into the NAEP database at ETS. Each processing activity was conducted with rigorous quality control. After the assessment information was compiled in the database, the data were weighted according to the population structure. The weighting for the national and state samples reflected the probability of selection for each student as a result of the sampling design, adjusted for nonresponse.⁷

Analyses were then conducted to determine the percentages of students who gave various responses to each cognitive and background question. In determining these percentages for the cognitive questions, a distinction was made between missing responses at the end of a block (i.e., missing responses after the last question the student answered) and missing responses before the last observed response. Missing responses before the last observed response were considered intentional omissions. In analysis, omitted responses to multiple-choice items were scored as fractionally correct.⁸ Omitted responses for constructed-response items were placed into the lowest score category. Missing responses after the last observed response were considered "not reached" and treated as if the questions had not been presented to the student. In calculating response percentages for each question, only students classified as having been presented the question were included in the denominator of the statistic.

It is standard NAEP practice to treat all nonrespondents to the last question in a block as if they had not reached the question. For multiple-choice and short constructed-response questions, this practice produces a reasonable pattern of results in that the proportion reaching the last question is not dramatically smaller than the proportion reaching the next-to-last question. However, for mathematics blocks that ended with extended constructed-response questions, there may be extremely large drops in the proportion of students attempting some of the final questions. Therefore, for blocks ending with an extended constructed-response question, students who answered the next-to-last question, but did not respond to the extended constructed-response question, were classified as having intentionally omitted the last question.

Item Response Theory (IRT) was used to estimate average mathematics scale scores for the nation and for various subgroups of interest within the nation. IRT models the probability of answering a question in a certain way as a mathematical function of proficiency or skill. The main purpose of IRT analysis is to provide a common scale

on which performance can be compared among groups, such as those defined by characteristics including gender and race/ethnicity, even when students receive different blocks of items. One desirable feature of IRT is that it locates items and students on this common scale. In contrast to classical test theory, IRT does not rely solely on the total number of correct item responses, but uses the particular patterns of student responses to items in determining the student location on the scale. As a result, adding items that function at a particular point on the scale to the assessment does not change the location of the students on the scale, even though students may respond correctly to more items. It does increase the relative precision with which students are measured, particularly those students whose scale locations are close to the additional items.

The results for 1990, 1992, 1996, 2000, 2003, 2005, and 2007 are presented on the NAEP mathematics composite scale. For the NAEP mathematics assessment, a scale ranging from 0 to 500 was used to report performance in each of the five mathematics content areas at each grade: number properties and operations; measurement; geometry; data analysis and probability; and algebra. The scales summarize student performance across all three types of questions in the assessment (multiple-choice, short constructed-response, and extended constructed-response).

In producing these content-area scales, three distinct IRT models were used. Multiple-choice questions were scaled using the three-parameter logistic (3PL) model; short constructed-response questions rated as acceptable or unacceptable were scaled using the two-parameter logistic (2PL) model; and short constructed-response questions rated according to a three-level guide, as well as extended constructed-response questions rated on a four- or five-level guide, were scaled using a generalized partial-credit (GPC) model.⁹ Developed by ETS and first used in 1992, the GPC model permits the scaling of questions scored according to multipoint rating schemes. The model takes full advantage of the information available from each of the student response categories used for these more complex constructed-response questions.¹⁰

Because the NAEP design gives each student a small proportion of the pool of assessment items, the assessment cannot provide reliable information about individual performance. Traditional test scores for individual students, even those based on IRT, would result in misleading estimates of population characteristics, such as subgroup means and percentages of students at or above a certain scale-score level. However, it is NAEP's goal to estimate these population characteristics. NAEP's objectives can be achieved with methodologies that produce estimates of the population-level parameters directly, without the intermediary computation of estimates of individuals. This is accomplished using marginal estimation scaling model techniques for latent variables.¹¹ Under the assumptions of the scaling models, these population estimates will be consistent in the sense that the estimates approach the model-based population values as the sample size increases. This would not be the case for population estimates obtained by aggregating optimal estimates of individual performance.¹²

Weighting and Variance Estimation

A complex sampling design was used to select the students who were assessed. The properties of a sample selected through such a design can be very different from those of a simple random sample in which every student in the target population has an equal chance of selection and in which the observations from different sampled students can be considered to be statistically independent of one another. Therefore, the properties of the sample for the data collection design were taken into account during the analysis of the assessment data.

One way that the properties of the sample design were addressed was by using sampling weights to account for the fact that the probabilities of selection were not identical for all students. All population and subpopulation characteristics based on the assessment data were estimated using sampling weights. These weights included adjustments for school and student nonresponse.

Prior to 2003, the national samples used weights that had been poststratified to the U.S. Census or Current Population Survey (CPS) totals for the populations being assessed. Due to concerns about the availability of appropriate targets for poststratification as a result of changes in the reporting of race in the 2000 Census, nonpoststratified weights have been used in the analysis of national samples since 2003. The state NAEP samples have always been analyzed using nonpoststratified weights, since there were no targets available from CPS to use in poststratification.

Not only must appropriate estimates of population characteristics be derived, but appropriate measures of the degree of uncertainty must be obtained for those statistics. Two components of uncertainty are accounted for in the variability of statistics based on student ability: the uncertainty due to sampling only a relatively small number

of students, and the uncertainty due to sampling only a portion of the cognitive domain of interest. The first component accounts for the variability associated with the estimated percentages of students who had certain background characteristics or who answered a certain cognitive question correctly.

Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any student information that can be observed without error. However, because each student typically responds to only a few questions within any mathematics content area, the scale score for any single student would be imprecise. In this case, NAEP's marginal estimation methodology can be used to describe the performance of groups and subgroups of students. The estimate of the variance of the students' posterior scale score distributions (which reflect the imprecision due to lack of measurement accuracy) is computed. This component of variability is then included in the standard errors of NAEP scale scores.¹³

In some circumstances, it is not possible to obtain appropriate estimates of standard errors, and the accuracy of the statistic being estimated may then be called into question. In the case of extreme percentages, close to 100 or 0 for student group percentages and percentages at or above achievement levels, the standard error may have unknown accuracy or be undefined. In such cases, tables of NAEP results in the NAEP Data Explorer software tool display the symbol *** in place of the standard error and provide the notation: Standard error cannot be determined.

When a standard error is based on a small number of students, or the group of students is enrolled in a small number of schools, the amount of uncertainty associated with the estimation of the standard error may be quite large, and the accuracy of both the standard error and the estimate of the statistic are compromised. Two indicators are used for these situations: the "rule of five" and the coefficient of variation of the denominator of the estimator. The rule of five requires that estimates of statistics be based on at least five sampling units (e.g., schools). The coefficient of variation quantifies the standard error of the sample relative to the sample size. The relative size of the standard error should not exceed 20 percent. If these requirements are not met, tables of NAEP results insert the symbol ‡ in place of both the statistic and its standard error, and provide the notation: Reporting standards not met.

The symbol ‡ and its accompanying notation are also used in other instances. For example, it is used when the sample size falls below the minimum of 62 students needed to ensure enough power to detect certain effects, and when response rates fall below certain levels. However, these instances are largely unrelated to concerns about weighting or variance estimation.

The reader is reminded that, as with findings from all surveys, NAEP results are subject to other kinds of error, including the effects of imperfect adjustment for student and school nonresponse and unknowable effects associated with the particular instrumentation and data collection methods. Nonsampling errors can be attributed to a number of sources—inability to obtain complete information about all selected schools in the sample (some students or schools refused to participate, or students participated but answered only certain questions); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct background information; mistakes in recording, coding, or scoring data; and other errors in collecting, processing, sampling, and estimating missing data. The extent of nonsampling errors is difficult to estimate and, because of their nature, the impact of such errors cannot be reflected in the data-based estimates of uncertainty provided in NAEP reports.

Drawing Inferences from the Results

The reported statistics are estimates and are therefore subject to a measure of uncertainty. There are two sources of such uncertainty. First, NAEP uses a sample of students rather than testing all students. Second, all assessments have some amount of uncertainty because they cannot ask all the questions that might be asked in a content area. The magnitude of this uncertainty is reflected in the standard error of each of the estimates. When the percentages or average scale scores of certain groups are compared, the estimated standard error should be taken into account. Therefore, the comparisons are based on statistical tests that consider the estimated standard errors of those statistics and the magnitude of the difference among the averages or percentages.

For the data in this report, all the estimates have corresponding estimated standard errors of the estimates. For example, tables A-25 and A-26 show the average national scale score for the NAEP 1990–2007 national assessments and the percentage of students within each achievement-level range and at or above achievement

levels. In both tables, estimated standard errors appear in parentheses next to each estimated scale score or percentage. For the estimated standard errors corresponding to other data from this report, the reader can consult the NAEP Data Explorer tool on the NCES website at <http://nces.ed.gov/nationsreportcard/naepdata/>.

Using confidence intervals based on the standard errors provides a way to take into account the uncertainty associated with sample estimates and to make inferences about the population averages and percentages in a manner that reflects that uncertainty. An estimated sample average scale score plus or minus 1.96 standard errors approximates a 95 percent confidence interval for the corresponding population quantity. This statement means that one can conclude with an approximately 95 percent level of confidence that the average performance of the entire population of interest (e.g., all fourth-grade students in public and nonpublic schools) is within plus or minus 1.96 standard errors of the sample average.

For example, suppose that the average mathematics scale score of the students in a particular group was 256 with an estimated standard error of 1.2. An approximately 95 percent confidence interval for the population quantity would be as follows:

$$\text{Average} \pm 1.96 \text{ standard errors}$$

$$= 256 \pm 1.96 \times 1.2$$

$$= 256 \pm 2.4$$

Therefore, the 95% confidence interval is bounded by: (253.6, 258.4).

Thus, one can conclude with a 95 percent level of confidence that the average scale score for the entire population of students in that group is between 253.6 and 258.4. It should be noted that this example and the examples in the following sections are illustrative. More precise estimates carried out to one or more decimal places are used in the actual analyses.

Similar symmetric confidence intervals can be constructed for percentages, if the percentages are not extremely large or small. For extreme percentages, a symmetric interval based on a normal distribution is not appropriate, and the common standard error calculation is possibly problematic. Standard errors of extreme percentages should be interpreted with caution.

Average scale scores and standard errors for public and nonpublic school students in NAEP mathematics, by grade: Various years, 1990–2007

Grade	Accommodations not permitted			Accommodations permitted				
	1990	1992	1996	1996	2000	2003	2005	2007
Grade 4	213 (0.9) *	220 (0.7) *	224 (0.9) *	224 (1.0) *	226 (0.9) *	235 (0.2) *	238 (0.1) *	240 (0.2)
Grade 8	263 (1.3) *	268 (0.9) *	272 (1.1) *	270 (0.9) *	273 (0.8) *	278 (0.3) *	279 (0.2) *	281 (0.3)

* Significantly different ($p < .05$) from 2007.

NOTE: Standard errors of the estimated scale scores appear in parentheses. Beginning in 2003, NAEP mathematics sample sizes have increased compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

Percentage of public and nonpublic school students and standard errors in NAEP mathematics, by achievement-level performance, grade, and assessment year: Various years, 1990–2007

Grade and year	Below <i>Basic</i>	At <i>Basic</i>	At <i>Proficient</i>	At <i>Advanced</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>
Grade 4						
Accommodations not permitted						
1990	50 (1.4) *	37 (1.5) *	12 (1.1) *	1 (0.4) *	50 (1.4) *	13 (1.2) *
1992	41 (1.0) *	41 (1.0)	16 (1.0) *	2 (0.3) *	59 (1.0) *	18 (1.0) *
1996	36 (1.2) *	43 (0.9)	19 (0.8) *	2 (0.3) *	64 (1.2) *	21 (0.9) *
Accommodations permitted						
1996	37 (1.3) *	43 (1.0)	19 (0.9) *	2 (0.3) *	63 (1.3) *	21 (1.1) *
2000	35 (1.3) *	42 (1.1)	21 (0.9) *	3 (0.3) *	65 (1.3) *	24 (1.0) *
2003	23 (0.3) *	45 (0.3) *	29 (0.3) *	4 (0.1) *	77 (0.3) *	32 (0.3) *

2005	20 (0.2) *	44 (0.2) *	31 (0.2) *	5 (0.1) *	80 (0.2) *	36 (0.2) *
2007	18 (0.2)	43 (0.3)	34 (0.3)	6 (0.1)	82 (0.2)	39 (0.3)
Grade 8						
Accommodations not permitted						
1990	48 (1.4) *	37 (1.1) *	13 (1.0) *	2 (0.3) *	52 (1.4) *	15 (1.1) *
1992	42 (1.1) *	37 (0.8) *	18 (0.8) *	3 (0.4) *	58 (1.1) *	21 (1.0) *
1996	38 (1.1) *	39 (1.0)	20 (0.8) *	4 (0.5) *	62 (1.1) *	24 (1.1) *
Accommodations permitted						
1996	39 (1.0) *	38 (0.9)	20 (0.9) *	4 (0.4) *	61 (1.0) *	23 (1.0) *
2000	37 (0.9) *	38 (0.7)	21 (0.6) *	5 (0.4) *	63 (0.9) *	26 (0.8) *
2003	32 (0.3) *	39 (0.2)	23 (0.2) *	5 (0.1) *	68 (0.3) *	29 (0.3) *
2005	31 (0.2) *	39 (0.2)	24 (0.2) *	6 (0.1) *	69 (0.2) *	30 (0.2) *
2007	29 (0.3)	39 (0.2)	25 (0.2)	7 (0.2)	71 (0.3)	32 (0.3)

* Significantly different ($p < .05$) from 2007.

NOTE: Standard errors of the estimated percentages appear in parentheses. Beginning in 2003, NAEP mathematics sample sizes have increased compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2007 Mathematics Assessments.

Analyzing Group Differences in Averages and Percentages

Statistical tests determine whether, based on the data from the groups in the sample, there is strong enough evidence to conclude that the averages or percentages are actually different for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed higher or lower than another group), regardless of whether the sample averages or percentages appear to be approximately the same. The reader is cautioned to rely on the results of the statistical tests rather than on the apparent magnitude of the difference between sample averages or percentages when determining whether the sample differences are likely to represent actual differences among the groups in the population.

To determine whether a real difference exists between the average scale scores (or percentages of a certain attribute) for two groups in the population, one needs to obtain an estimate of the degree of uncertainty associated with the difference between the averages (or percentages) of these groups for the sample. This estimate of the degree of uncertainty, called the "standard error of the difference" between the groups, is obtained by taking the square of each group's standard error, summing the squared standard errors, and taking the square root of that sum.

Standard Error of the Difference =

The standard error of the difference can be used, just like the standard error for an individual group average or percentage, to help determine whether differences among groups in the population are real. The difference between the averages or percentages of the two groups plus or minus 1.96 standard errors of the difference represents an approximately 95 percent confidence interval. If the resulting interval includes zero, there is insufficient evidence to claim a real difference between the groups in the population. If the interval does not contain zero, the difference between the groups is statistically significant at the .05 level.

The following example of comparing groups addresses the problem of determining whether the average mathematics scale score of group A is higher than that of group B. The sample estimates of the average scale scores and estimated standard errors are as follows:

Group	Average scale score	Standard error
A	218	0.9
B	216	1.1

The difference between the estimates of the average scale scores of groups A and B is two points (218–216). The standard error of this difference is

Thus, an approximately 95 percent confidence interval for this difference is plus or minus 1.96 standard errors of the difference:

$$2 \pm 1.96 \times 1.4$$

$$2 \pm 2.7$$

$$(-0.7, 4.7)$$

The value zero is within the confidence interval; therefore, there is insufficient evidence to conclude that group A performed statistically differently from group B.

The procedure above is appropriate to use when it is reasonable to assume that the groups being compared have been independently sampled for the assessment. Such an assumption is clearly warranted when comparing results across assessment years (e.g., comparing the 2005 and 2007 results for a particular state or student group) or when comparing results for one state with another. This is the approach used for NAEP reports when comparisons involving independent groups are made. The assumption of independence is violated to some degree when comparing group results for the nation or a particular state (e.g., comparing national 2007 results for males and females), since these samples of students have been drawn from the same schools. When the groups being compared do not share students (as is the case, for example, when comparing males and females), the impact of this violation of the independence assumption on the outcome of the statistical tests is assumed to be small, and NAEP, by convention, has, for computational convenience, routinely applied the procedures described above to those cases as well.

When making comparisons of results for groups that share a considerable proportion of students in common, it is not appropriate to ignore such dependencies. In such cases, NAEP has used procedures appropriate to comparing dependent groups. When the dependence in group results is due to the overlap in samples (e.g., when a subgroup is being compared to a total group), a simple modification of the usual standard error of the difference formula can be used. The formula for such cases is

where p is the proportion of the total group contained in the subgroup.¹⁴ This formula was used for this report when a state was compared to the aggregate nation.

Conducting Multiple Tests

The procedures used to determine whether group differences in the samples represent actual differences among the groups in the population and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, there are times when many different groups are being compared (i.e., multiple sets of confidence intervals are being analyzed). In sets of confidence intervals, statistical theory indicates that the certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), the standard methods must be adjusted by multiple comparison procedures.¹⁵ One such procedure, the Benjamini-Hochberg False Discovery Rate (FDR) procedure, was used to control the certainty level.¹⁶

Unlike other multiple comparison procedures that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. (A "family" in this context is the number of categories to be compared for a given variable. This might be six within the race/ethnicity variable or 50 when considering states.) Furthermore, the FDR procedure used in NAEP is considered appropriately less conservative than familywise procedures for large families of comparisons.¹⁷ Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than are other procedures.

To illustrate how the FDR procedure is used, consider the comparisons of current and previous years' average scale scores for the five groups presented in table A-27. The test statistic shown is the difference in average scale scores divided by the estimated standard error of the difference. (Rounding of the data occurs after the test is done.)

Example of False Discovery Rate comparisons of average scale scores for different groups of students

Previous year	Current year	Previous year and current year
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Group	Average scale score	Standard error	Average scale score	Standard error	Differences in averages	Standard error of differences	Test statistic	Percent confidence ¹
1	224	1.3	226	1.0	2.08	1.62	1.29	20
2	187	1.7	193	1.7	6.31	2.36	2.68	1
3	191	2.6	197	1.7	6.63	3.08	2.15	4
4	229	4.4	232	4.6	3.24	6.35	0.51	62
5	201	3.4	196	4.7	-5.51	5.81	-0.95	35

¹The percent confidence is $2(1-F(x))$ where $F(x)$ is the cumulative distribution of the t -distribution with the degrees of freedom adjusted to reflect the complexities of the sample design.

NOTE: Data in table are for illustration purposes only and are not actual NAEP data.

The difference in average scale scores and its estimated standard error can be used to find an approximately 95 percent confidence interval, or they can be used to identify a confidence percentage. The confidence percentage for the test statistics is identified from statistical tables instead of checking whether zero is within the 95 percent confidence interval about the mean. The significance level from the statistical tables can be directly compared to the maximum acceptable error of 5 percent ($100 - 95 = 5$ percent).

If the comparison of average scale scores across two years were made for only one of the five groups, there would be a significant difference between the average scale scores for the two years at a significance level of less than 5 percent. However, because we are interested in the difference in average scale scores across the two years for all five of the groups, comparing each of the significance levels to 5 percent is not adequate. Groups of students defined by shared characteristics, such as racial/ethnic groups, are treated as sets or families when making comparisons. However, comparisons of average scale scores for each pair of years were treated separately, so the steps described in this example would be replicated for the comparison of other current and previous year average scale scores.

Using the FDR procedure to take into account that all comparisons are of interest to us, the percents of confidence in the example are ordered from largest to smallest: 62, 35, 20, 4, and 1. In the FDR procedure, 62 percent confidence for the group 4 comparison would be compared to 5 percent, 35 percent for the group 5 comparison would be compared to $0.05 \times (5-1)/5 = 0.04 = 4$ percent,¹⁸ 20 percent for the group 1 comparison would be compared to $0.05 \times (5-2)/5 = 0.03 = 3$ percent, 4 percent for the group 3 comparison would be compared to $0.05 \times (5-3)/5 = 0.02 = 2$ percent, and 1 percent for the group 2 comparison (actually slightly smaller than 1 prior to rounding) would be compared to $0.05 \times (5-4)/5 = 0.01 = 1$ percent. The procedure stops with the first contrast found to be significant. The last of these comparisons is the only one for which the percent confidence is smaller than the FDR procedure value. The difference between the current year's and previous years' average scale scores for the group 2 students is significant; for all of the other groups, average scale scores for the current and previous year are not significantly different from one another. In practice, a very small number of counterintuitive results occur when the FDR procedures are used to examine between-year differences in subgroup results by jurisdiction. In those cases, results were not included in this report.

Understanding NAEP Reporting Groups

NAEP results are provided for groups of students defined by shared characteristics—gender, race/ethnicity, parental education, region of the country, type of school, school's type of location (categorized by population density), and eligibility for free/reduced-price school lunch under the National School Lunch Program. Based on participation rate criteria, results are reported for subpopulations only when sufficient numbers of students and adequate school representation are present. In addition, based on statistical considerations about power and variance estimation, the minimum requirement on which to base any subgroup statistic is at least 62 students in a particular subgroup from at least five primary sampling units (PSUs).¹⁹ Definitions of the subpopulations are presented below.

Gender: Results are reported separately for male students and female students.

Race/Ethnicity: In all NAEP assessments, data about student race/ethnicity is collected from two sources: school records and student self-reports. Prior to 2002, NAEP used students' self-reported race as the primary race/ethnicity reporting variable. Beginning in 2002, the race/ethnicity variable presented in NAEP reports has been based on the race reported by the school. When school-recorded information is missing, student-reported data are used to determine race/ethnicity. Therefore, beginning in 2002 the data for racial/ethnic groups included for all assessment years are based on the school-reported race/ethnicity variable. Information on student race/ethnicity is reported as one of six categories: White, Black, Hispanic, Asian/Pacific Islander, American

Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin unless specified. Unclassified students are those whose school-reported race/ethnicity was "other" or "unavailable" or was missing, and whose race/ethnicity category could not be determined from self-reported information. Information based on student self-reported race/ethnicity is available on the NAEP Data Tool at <http://nces.ed.gov/nationsreportcard/naepdata/>.

Parental Education: Eighth- and twelfth-graders were asked the following two questions, the responses to which were combined to derive the parental education variable:

How far in school did your mother go?

- She did not finish high school.
- She graduated from high school.
- She had some education after high school.
- She graduated from college.
- I don't know.

How far in school did your father go?

- He did not finish high school.
- He graduated from high school.
- He had some education after high school.
- He graduated from college.
- I don't know.

The information was combined into one parental-education reporting variable in the following way: If a student indicated the extent of education for only one parent, that level was included in the data. If a student indicated the extent of education for both parents, the higher of the two levels was included in the data. If a student responded "I don't know" for both parents, or responded "I don't know" for one parent and did not respond for the other, the parental education level was classified as "I don't know." If the student did not respond for either parent, the student was recorded as having provided no response. Prior to 2005, parental education questions were presented to students at grade 4, but were not reported because their responses were highly variable. Starting in 2005, parental education questions were not presented to students at grade 4.

Region of the Country: Prior to 2003, NAEP results were reported for four NAEP-defined regions of the nation: Northeast, Southeast, Central, and West. As of 2003, to align NAEP with other federal data collections, NAEP analysis and reports have used the U.S. Census Bureau's definition of "region." The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West. The Central region used by NAEP before 2003 contained the same states as the Midwest region defined by the U.S. Census. The former Southeast region consisted of the states in the Census-defined South minus Delaware, the District of Columbia, Maryland, Oklahoma, Texas, and the section of Virginia in the District of Columbia metropolitan area. The former West region consisted of Oklahoma, Texas, and the states in the Census-defined West. The former Northeast region consisted of the states in the Census-defined Northeast plus Delaware, the District of Columbia, Maryland, and the section of Virginia in the District of Columbia metropolitan area. Therefore trend data by region are provided in NAEP reports for 2003 and 2005 only. Figure A-1 shows how states are subdivided into these census regions. All 50 states and the District of Columbia are listed. Other jurisdictions, including the Department of Defense Educational Activity schools, are not assigned to any region.

Figure A-1

States within regions of the country defined by the U.S. Census Bureau

Northeast	South	Midwest	West
Connecticut	Alabama	Illinois	Alaska
Maine	Arkansas	Indiana	Arizona
Massachusetts	Delaware	Iowa	California
New Hampshire	District of Columbia	Kansas	Colorado
New Jersey	Florida	Michigan	Hawaii
New York	Georgia	Minnesota	Idaho
Pennsylvania	Kentucky	Missouri	Montana

Rhode Island	Louisiana	Nebraska	Nevada
Vermont	Maryland	North Dakota	New Mexico
	Mississippi	Ohio	Oregon
	North Carolina	South Dakota	Utah
	Oklahoma	Wisconsin	Washington
	South Carolina		Wyoming
	Tennessee		
	Texas		
	Virginia		
	West Virginia		

SOURCE: U.S. Department of Commerce Economics and Statistics Administration.

Type of School: Results are reported by the type of school that the student attends—public or private. Private schools include Catholic and other private schools.²⁰ Because they are funded by federal authorities (not state/local governments), Bureau of Indian Education (BIE) schools and Department of Defense Education Activity (DoDEA) schools are not included in either the public or private categories; they are included in the overall national results. State-level reporting in NAEP includes only public schools. The national sample reporting for NAEP includes public, private, the DoDEA, and BIE schools.

Type of Location: NAEP results are reported for four mutually exclusive categories of school location: city, suburb, town, and rural. The categories are based on standard definitions established by the Federal Office of Management and Budget using population and geographic information from the U.S. Census Bureau. Schools are assigned to these categories in the NCES Common Core of Data based on their physical address. The classification system was revised for 2007; therefore, trend comparisons to previous years are not available. The new locale codes are based on an address's proximity to an urbanized area (a densely settled core with densely settled surrounding areas). This is a change from the original system based on metropolitan statistical areas. To distinguish the two systems, the new system is referred to as "urban-centric locale codes."

The urban-centric locale code system classifies territory into four major types: city, suburban, town, and rural. Each type has three subcategories. For city and suburb, these are gradations of size—large, midsize, and small. Towns and rural areas are further distinguished by their distance from an urbanized area. They can be characterized as fringe, distant, or remote. More detail on the locale codes is available at http://nces.ed.gov/ccd/rural_locales.asp.

Eligibility for the National School Lunch Program: As part of the Department of Agriculture's National School Lunch Program, schools can receive cash subsidies and donated commodities in turn for offering free or reduced-price lunches to eligible children. Based on available school records, students were classified as either currently eligible for free/reduced-price school lunch or not eligible. Eligibility for the program is determined by students' family income in relation to the federally established poverty level. Free lunch qualification is set at 130 percent of the poverty level or below, and reduced-price lunch qualification is set at between 130 and 185 percent of the poverty level. (For the period July 1, 2006 through June 30, 2007, for a family of four, 130 percent of the poverty level was \$26,000, and 185 percent was \$37,000.) Additional information on eligibility may be found at the Department of Agriculture website at <http://www.fns.usda.gov/cnd/lunch/>. The classification applies only to the school year when the assessment was administered (i.e., the 2006–07 school year) and is not based on eligibility in previous years. If school records were not available, the student was classified as "Information not available." If the school did not participate in the program, all students in that school were classified as "Information not available."

Caution in Interpretations

As previously stated, the NAEP mathematics scale makes it possible to examine relationships between students' performance and various background factors measured by NAEP. However, a relationship that exists between achievement and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, the assessments do not reflect the influence of unmeasured variables. The results are most useful when they are considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations. A caution is also warranted for some small population group estimates. At times in this report, smaller population groups show very large increases or decreases across years in average scores; however, it is necessary to interpret such score gains with extreme caution. The effects of exclusion-rate changes for small

subgroups may be more marked for small groups than they are for the whole population. Another reason for caution is that the standard errors are often quite large around the score estimates for small groups, which in turn means the standard error around the gain is also large.

End Notes

¹ National Council of Teachers of Mathematics. (1989). *Curriculum and Evaluation Standards for School Mathematics*. Reston, VA: Author.

² National Assessment of Educational Progress. (1988). *Mathematics Objectives: 1990 Assessment*. Princeton, NJ: Author.

³ National Assessment Governing Board. (1995). *Mathematics Framework for the 1996 National Assessment of Educational Progress*. Washington, DC: Author.

⁴ Section 504 of the Rehabilitation Act of 1973 is a civil rights law designed to prohibit discrimination on the basis of disability in programs and activities, including education, that receive federal financial assistance.

⁵ Office of Special Education Programs. (1997). *To Assure the Free Appropriate Public Education of All Children with Disabilities. Nineteenth Annual Report to Congress on the Implementation of the Individuals With Disabilities Education Act*. Archived at the U.S. Department of Education website:

<http://www.ed.gov/about/offices/list/osers/index.html>.

⁶ The two samples are described as "overlapping" because in 1996 and 2000, the same group of non-SD/non-ELL students was included in both samples.

⁷ Weighting procedures are described more fully in the "Weighting and Variance Estimation" section in this document. Additional information about the use of weighting procedures will be included in the technical documentation section of the NAEP website (<http://nces.ed.gov/nationsreportcard>).

⁸ Lord, F.M. (1980). *Applications of Item Response Theory to Practical Testing Problems*, p. 229. Hillsdale, NJ: Lawrence Erlbaum Associates.

⁹ Muraki, E. (1992). A Generalized Partial Credit Model: Application of an EM Algorithm. *Applied Psychological Measurement*, 16(2): 159–176.

¹⁰ More detailed information regarding the IRT analyses used in NAEP will be included in the technical documentation section of the NAEP website (<http://nces.ed.gov/nationsreportcard>).

¹¹ Mislevy, R.J., and Sheehan, K.M. (1987). Marginal Estimation Procedures. In A.E. Beaton (Ed.) *Implementing the New Design: The NAEP 1983–1984 Technical Report* (Technical Rep. No. 15-TR-20), pp. 293–260. Princeton, NJ: Educational Testing Service.

¹² For theoretical and empirical justification of the procedures employed, see Mislevy, R. J. (1988). Randomization-Based Inferences About Latent Variables From Complex Samples. *Psychometrika*, 56(2), 177–196.

¹³ For further details, see Johnson, E.G., and Rust, K.F. (1992). Population Inferences and Variance Estimation for NAEP Data. *Journal of Educational Statistics*, 17(2), 175–190.

¹⁴ This is a special form of the common formula for standard error of dependent samples. The standard formula can be found, for example, in Kish, L. (1995). *Survey Sampling*. New York: John Wiley and Sons, Inc.

¹⁵ Miller, R.G. (1981). *Simultaneous Statistical Inference* (2nd ed.). New York: Springer-Verlag.

¹⁶ Benjamini, Y., and Hochberg, Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society, Series B*, no. 1, 289–300.

¹⁷ Williams, V.S.L., Jones, L.V., and Tukey, J.W. (1999). Controlling Error in Multiple Comparisons with Examples From State-to-State Differences in Educational Achievement. *Journal of Educational and Behavioral Statistics*, 24(1), 42–69.

¹⁸ The level of confidence times the number of comparisons minus one divided by the number of comparisons is $0.05(5-1)/5 = 0.04 = 4$ percent.

¹⁹ For the NAEP national assessments prior to 2002, a PSU is a selected geographic region (a county, group of counties, or metropolitan statistical area). Since 2002, the first-stage sampling units are schools (public and nonpublic) in the selection of the combined sample. Further details about the procedure for determining minimum sample size will appear in the technical documentation section of the NAEP website at <http://nces.ed.gov/nationsreportcard>.

²⁰ A more detailed breakdown of private school results is available on the NAEP website at <http://nces.ed.gov/nationsreportcard/naepdata>.

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Where to Find More Information

The NAEP Mathematics Assessment

The latest news about the NAEP 2007 mathematics assessment and the national results can be found on the NAEP website at <http://nces.ed.gov/nationsreportcard/mathematics/results/>. The individual snapshot reports for each participating state and other jurisdictions are also available in the state results section of the website at <http://nces.ed.gov/nationsreportcard/states/>.

The Nation's Report Card: Mathematics 2007 may be ordered or downloaded at the NAEP website.

The *Mathematics Framework for the 2007 National Assessment of Educational Progress*, on which this assessment is based, is available at the National Assessment Governing Board website at http://nagb.org/frameworks/m_framework_05/761607-Math%20Framework.pdf

Additional Results from the Mathematics Assessment

For more findings from the 2007 mathematics assessments, refer to the NAEP 2007 results at <http://nces.ed.gov/nationsreportcard/naepdata/>. The interactive database at this site includes student, teacher, and school variables for all participating states and other jurisdictions, the nation, and the four regions. Data tables are also available for each jurisdiction, with all background questions cross-tabulated with the major demographic variables. Users can design and create tables and can perform tests of statistical significance at this website.

Technical Documentation

For explanations of NAEP survey procedures, see: Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (2001). *The NAEP 1998 Technical Report*. (NCES 2001–509). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. Technical information may also be found on the NAEP website at <http://nces.ed.gov/nationsreportcard/tdw/>.

Publications on the inclusion of students with disabilities and English language learners

Olson, J.F., and Goldstein, A.A. (1997). *The Inclusion of Students With Disabilities and Limited-English-Proficient Students in Large-Scale Assessments: A Summary of Recent Progress* (NCES 97–482). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Mazzeo, J., Carlson, J.E., Voelkl, K.E., and Lutkus, A.D. (2000). *Increasing the Participation of Special-Needs Students in NAEP: A Report on 1996 Research Activities* (NCES 2000–473). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Lutkus, A.D., and Mazzeo, J. (2003). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part I: Comparison of Overall Results With and Without Accommodations* (NCES 2003–467). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Lutkus, A.D. (2004). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part II: Results for Students With Disabilities and Limited-English-Proficient Students* (ETS-NAEP 04-R01). Princeton, NJ: Educational Testing Service.

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